

U. S. DEPARTMENT OF COMMERCE  
ALEXANDER B. TROWBRIDGE, Acting Secretary  
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION  
ENVIRONMENTAL DATA SERVICE

# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

JANUARY 1967  
Volume 18 No. 1



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NOTE: Delayed data and corrections will be carried in the June and December issues of this publication.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

Volume 18 No. 1

JANUARY 1967

### GENERAL SUMMARY OF WEATHER CONDITIONS

#### HIGHLIGHTS:

1. Unseasonably mild temperatures with wide fluctuations.
2. Third consecutive extremely dry month in lower Great Plains.
3. Unprecedented snowfall in Texas and Mexico.
4. Frequent snowstorms in East.
5. Tornado outbreak in Midcontinent on 24th.

**TEMPERATURE.**--January 1966 was relatively mild in most areas, with temperatures for the month averaging as much as  $12^{\circ}$  above normal in the Pacific Northwest,  $8^{\circ}$  in the Northeast, and tapering off to normal or slightly below in south-central areas and the Rio Grande Valley. The month began with very cold weather in most sections, but with a generally rising temperature trend during the remainder of the month it ended with above-normal warmth throughout the 48 States. This was the mildest January since the early 1950's in a large portion of the Country. Washington, D. C., had its mildest January since 1950; Boise, Idaho, since 1954; Oklahoma City, Okla., Wilmington, N. C., and Columbus, Ohio, since 1953. Green Bay, Wis., reported less ice on nearby waters than in many years.

Very cold weather the first 10 or 12 days of the month persisted for 3 weeks in extreme south-central areas. In most of the Nation, however, a warming trend began early in the second decade and continued with only brief interruptions for the rest of the month.

Lowest temperatures in the Far West generally occurred early in the month when subzero minima extended southward to northern Arizona and New Mexico, with freezing almost to the Mexican border. In the Red River of the North Valley, most of the Mississippi and Ohio Valleys, and the Northeast, the coldest period was January 17-20. During this period subzero minima extended southward to northern Kansas, central Illinois and Indiana, and were reported by many stations in New York, northern New England, and by mountain stations in Pennsylvania. Bismarck, N. Dak., recorded  $-40^{\circ}$  on the 17th, a record low there for the date.

There were several warm periods during the month with most stations recording their highest temperatures in the last decade except about midmonth in California and the Great Basin. Reno, Nev., recorded  $70^{\circ}$  on the 15th, its highest during an 80-year record. Valentine, Nebr., reported its highest temperature for January during a 74-year record,  $68^{\circ}$  on the 22d, and Lansing, Mich., reported  $66^{\circ}$  on the 24th for the highest there in January during a 68-year record. At Trenton, N. J., daily maximum temperatures during the period 23d-26th ranged from  $62^{\circ}$  to  $70^{\circ}$ , the longest "January thaw" in 101 years of record. At Reading, Pa., the temperature reached  $70^{\circ}$  on the 24th and  $73^{\circ}$  on the 25th, the first time highs of  $70^{\circ}$  or higher ever occurred there on consecutive days.

**PRECIPITATION.**--Precipitation was above normal in about half the area of the 48 States --- mainly in the Great Basin and Pacific States, north-central areas, and Gulf and south Atlantic coastal areas. Monthly totals were more than twice normal in the vicinities of San Francisco and Sacramento, Calif., and the upper

Mississippi Valley and North Dakota. This was the second consecutive month with above normal precipitation in the upper Mississippi Valley. Minneapolis, Minn., measured 3.63 inches for the month, a new January record there, and several other stations in the area reported the heaviest precipitation for January since 1950. San Francisco, Calif., recorded 10.43 inches at the Airport for the month, its greatest total since 1928. Most of the precipitation in the Far West occurred during the second half of the month when a succession of storms moved from the Pacific into the area.

In the lower Great Plains, the Ohio and lower Mississippi Valleys, and parts of the Northeast, precipitation was less than 50 percent of normal. This was the third consecutive very dry month in the lower Great Plains. Southeastern New Mexico and a considerable portion of west Texas received no measurable amounts during the month. Lubbock, Tex., had no precipitation at all during January for the first time since 1911. Roswell, N. M., had no precipitation for the second time since 1894, and the 31st was the 138d day without measurable precipitation there.

**SNOWFALL.**--Snowfall was both frequent and heavy in much of the Far West and some north-central areas. Falls in the Far West left a good mountain snowpack which brightened prospects for irrigation water during the warm season of 1967. At the end of the month depths ranged up to 18 feet in the Cascades and 5 feet in the Rockies. Salt Lake City, Utah, had 30.4 inches of snowfall, the second heaviest for January in 93 years.

An unprecedented snowfall occurred in southern Texas and northern Mexico on the 9th. Falls of 5 to 7 inches were measured in southern Texas from Catulla and Three Rivers south to Hebbronville, the second heaviest fall on record in this area. Monterey, Mexico, reported a record fall of 20 inches for that station, and even heavier amounts were reported in other nearby localities.

Heavy snowstorms crossed the Great Plains and Great Lakes region on the 8th and 9th, 16th, and 26th. High winds during each storm seriously hampered or halted traffic over considerable areas. During the storm on the 8th and 9th, which moved from Colorado to the Great Lakes, blizzard conditions developed locally and up to 18 inches of snowfall were reported in Minnesota. In Upper Michigan on the shore of Lake Superior, the Marquette County Airport reported 52 inches of snow on the ground on the evening of January 7.

The storm of the 16th developed blizzard intensity as it moved across the northern Great Plains to the Great Lakes. Many roads were blocked by 1 to 2 feet of drifting snow in Minnesota and Wisconsin. Winds at Jamestown, N. Dak., reached 62 m.p.h., and the South Dakota Highway patrol reported some trucks blown off roads. This was the worst blizzard over the northern Great Plains since the great blizzard of March 1965. Hibbing, Minn., recorded  $-47^{\circ}$  after the storm.

The snowstorm of the 26th left a deep snow cover in the central Great Plains and Great Lakes region. Depths reached 2 feet in a belt reaching from northeastern Illinois across northern Indiana into central Lower Michigan. Winds up to 50 m.p.h. drifted snow 12 to 15 feet high. For Chicago, with a record dating back to 1886, snowfall during this storm set records

# GENERAL SUMMARY OF WEATHER CONDITIONS-Continued

JANUARY 1967

for 24 hours (19.8 in.) and a single storm (23.0 in.).

**DESTRUCTIVE STORMS.**--The storms which brought heavy snow to northern areas were also accompanied by local glazing. One of the worst glaze storms in several years caused heavy damage to trees and power and communication lines from central Missouri to north-

western Ohio near the end of the month. The glaze was 3/4 inch thick in Indiana.

Early-season tornadoes occurred in Missouri, Iowa, Illinois, and some nearby areas in other States on the 24th. At least 5 persons were killed and property damage was considerable.

## CONDENSED CLIMATOLOGICAL SUMMARY

JANUARY 1967

Section	Temperature							Precipitation						
	Monthly extremes						Monthly extremes							
	Station	Highest	Date	Station	Lowest	Date	Station	Greatest	Station	Least			In.	In.
Alabama	Whalley	81	24	3 Stations	-13	17+	Louisville	7.46	Trafford	.71				
Alaska	Ketchikan	50	10+	2 Stations	-58	29+	Little Port Walter	21.11	Wales Airport	.03				
Arizona	2 Stations	86	28	Maverick	-22	7	Beaverhead Lodge	2.81	20 Stations	.00				
Arkansas	Calico Rock	79	23	Gilbert	-4	18	Benton	2.92	2 Stations	.54				
California	Indio US Date Garden	88	15	Termo	-17	23	Kentfield	26.32	Gold Rock Ranch	.00				
Colorado	Wray	74	22	2 Stations	-43	8	Berthoud Pass	3.80	2 Stations	.00				
Connecticut	2 Stations	68	25+	Norfolk 2SW	-4	19	Brooklyn	2.09	Wigwam Reservoir	.63				
Delaware	Selbyville	75	24	Bridgeville 1NW	4	20	Georgetown 5SW	D 2.17	Lewes 1SW	1.29				
Florida	4 Stations	88	19+	2 Stations	22	29+	Weahitchka	11.10	Fort Drum 5NW	.31				
Georgia	Camilla	85	26	Helet 1SE	11	12	Ashburn 3ENE	9.59	Beaverdale	2.47				
Hawaii	Hilo WBAP, Hawaii	89	24	Haleakala Summit 338.4	20	11	N Wailua Ditch 1051	16.54	Mauna Loa Slope Obs.	.46				
Idaho	3 Stations	63	30+	Island Park Dam	-29	7	Burke 2ENE	10.53	Strevell	.12				
Illinois	East St Louis Pks Col	77	23	2 Stations	-20	18	Bloomington Waterworks	3.71	Wigwam Reservoir	.63				
Indiana	5 Stations	72	24+	Frankfort Disposal Pl	-11	18	Collegeville St Jc Col	3.66	Lewes 1SW	1.29				
Iowa	Keokuk Lock & Dam 19	68	22	2 Stations	-35	18	Britt	3.12	Fort Drum 5NW	.31				
Kansas	Kinsley	88	23	Alton 6E	-12	8	Howard 5NE	3.04	Mauna Loa Slope Obs.	.46				
Kentucky	Cumberland	80	25	Falmouth 5WNW	3	18	Middlesboro	3.72	Warsaw Markland Dam	.41				
Louisiana	Morgan City	82	24	Plain Dealing	13	19	Schriever	6.30	Springhill 2S	.95				
Maine	Sanford 2NNW	59	24	van Buren 2	-32	19	Rockland	3.59	2 Stations	1.26				
Maryland	Baltimore WB City	77	24	Sines Deep Creek 2	0	19	Hagerstown	2.59	Owings Ferry Landing	.42				
Massachusetts	Weston	68	25	Knightville Dam	-6	20	Rockport 1SE	3.57	Adams	.77				
Michigan	Lansing WBAP	66	24	Crystal Falls 6NE	-36	18	Watervliet	6.84	Harrisville 7SW	.91				
Minnesota	Preston	50	21	Cotton 11E	-48	18	Theiman	4.38	Pipestone	.32				
Mississippi	Yazoo City 5NNE	80	24	Tunica 1E	12	19+	Beaumont	8.25	Minter City	.88				
Missouri	2 Stations	79	24+	2 Stations	-9	18	Gregory Landing	3.72	Tarkio	.61				
Montana	Columbus	65	11	Opheim 10E	-48	17	Summit	9.60	Big Timber	T				
Nebraska	Benkelman	75	23	2 Stations	-21	18+	Omaha WBAP	2.00	Minden	T				
Nevada	2 Stations	73	16-	do	-16	26+	Glenbrook	10.77	Montello	.00				
New Hampshire	do	61	25+	Mount Washington	-29	18	Mount Washington	4.92	Whitefield	.89				
New Jersey	Atlantic City WBAP	78	24	2 Stations	-4	19	Phillipsburg Bridge	2.34	Millville	.53				
New Mexico	2 Stations	81	30	Gavilan	-31	7+	Bateman Ranch	1.44	79 Stations	.00				
New York	4 Stations	71	26+	2 Stations	-25	19	Hoover 4N	6.56	Groveland	.38				
North Carolina	Goldsboro 1SSW	81	25	Grandfather Mountain	-3	12	Coweeota Exp Station	6.24	Carthage 1SS	1.10				
North Dakota	2 Stations	52	29+	3 Stations	-40	18+	Grand Forks University	2.57	Selfridge	D .09				
Ohio	do	74	26+	Dorset	-10	19	Chardon	2.71	Springfield Sewage Pl	.30				
Oklahoma	Altus Irr Resch Stn	86	22	Hammon	3	18	Stillwater 2W	2.32	9 Stations	.00				
Oregon	2 Stations	65	29+	2 Stations	-12	24+	Valsetz	32.91	Mitchell	.34				
Pennsylvania	3 Stations	74	26+	Braddock 4W Res	-13	19	Hop Bottom 2SE	3.88	Newell	.35				
Puerto Rico	Guayama	93	31	Cayey 1E	50	6	Rio Blanco Upper	11.52	3 Stations	.00				
Rhode Island	3 Stations	65	24	Greenville	2	19	Block Island WBAP	1.90	Providence WBAP	1.60				
South Carolina	do	79	27+	Union 8SW	12	17	Beaufort 7SW	7.40	Winthrop College	1.84				
South Dakota	Winner	68	22	Britton	-31	17	Dumont 2ENE	1.51	Interior 3NE	.02				
Tennessee	2 Stations	76	25+	2 Stations	-7	20+	Kingston	4.03	Palmetto	1.04				
Texas	Hallettsville	89	22	Plains	0	9+	Houston Indep Heights	4.08	138 Stations	.00				
Utah	Provo Radio KOVO	68	21	Ouray 4NE	-26	8	Alta	13.57	3 Stations	T				
Vermont	Bellows Falls	62	25	West Burke	-31	19	Mount Mansfield	5.39	Gilman	.80				
Virginia	Danville Bridge St	79	25	Partlow 3WNW	-3	20	Newport News Press Bid	5.49	Mount Weather	.53				
Washington	Ice Harbor Dam	66	30	Winthrop 1WSW	-2	22	Aberdeen 20NNE	33.33	Priest Rapids Dam	.24				
West Virginia	9 Stations	75	27+	2 Stations	-1	19	McRoss	2.16	Horner	.20				
Wisconsin	Beloit	61	24	Neillsville 1W	-46	18	Readstown	D 4.44	Monroe 1W	.65				
Wyoming	Yoder	71	29	Lake Yellowstone	-28	7	Moran 5WNW	4.79	Burriss	.02				

\* And also on an earlier date or dates

NOTE: Dates in the above Condensed Climatological Summary apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

D Water equivalent of snowfall wholly or partly estimated, using a ratio of 1 inch water equivalent to every 10 inches of snowfall.

## CLIMATOLOGICAL DATA

ENGLISH UNITS

JANUARY 1967

State and Station	Pressure			Temperature												Precipitation						Wind				No. of days (sunrise to sunset)								
	Elevation (ground)	Station $\phi$	Sea level	Average maximum			Average minimum			Departure from normal			Date	No. of days	Max. 90 F or above	Min. 32 F. or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days	Snow, Sleet	Total	Maximum depth on ground	Resultant speed	Resultant direction	Speed	Direction	Date				
				F.	Mb.	F.	F.	F.	F.	Highest	Lowest	Average							Total	With thunderstorms	0.1 inch or more	Total	Maximum depth on ground	Resultant speed	Resultant direction	Speed	Direction	Date						
ALABAMA																																		
BIRMINGHAM	620	999.0	1022.1	55	33	44.0	-2.5	74	25	20	16+	0	18	35	73	2.84	-2.19	1.16	7	1	T	0	1.4	27	27	7	8	16	6.6	48				
HUNTSVILLE	600	998.0	1021.6	54	33	43.5	0.6	75	24	18	12	0	19	34	70	1.83	-3.39	0.75	6	1	T	1	1.1	20	30	12	14	15	5.1	5.1				
MOBILE	211	1213.5	1021.6	63	43	53.0	-0.2	75	24	29	16	0	2	43	73	5.46	-0.82	3.09	2	0	0.0	0	2.1	5	23	2	8	11	4	16	6.1			
MONTGOMERY	194	1014.6	1022.0	58	38	47.9	-0.2	75	25	27	17+	0	9	38	74	2.77	-1.29	1.03	10	0	0.0	0	1.5	31	25	5W	26	7	9	16	5.5	43		
ALASKA																																		
ANCHORAGE	114	1000.3	1005.6	15	-1	7.1		26	18	-15	15	0	31	0	71	1.25		0.65	6	0	0.0	0	16.7	31	3.4	1	44	4	28	11	8	12	5.5	57
ANNETTE	110	1001.0	1005.2	40	30	35.1	0.7	49	9	20	27+	0	18	29	79	9.25	-2.11	1.88	25	9	4.7	14	40	14	9	3	24	V	V	V	8.4			
BARROW	31	1011.5	1012.3	-4	-20	-12.0	4.2	29	22	-38	3	0	31	-20	72	0.19	0.01	0.07	5	24	2.7	13	29	27	25+	V	V	V	V	V				
BARTER ISLAND	39	1011.5	1013.4	-2	-19	-10.5	6.3	26	22	-36	14	0	31	-17	73	0.32	-0.08	0.10	7	3.2	13	4.7	25	61	26	x	x	x	x	x				
BETHEL	125	1002.4	1008.4	16	-2	7.4	3.8	38	17	-30	3	0	30	4	84	0.88	-0.24	0.49	7	8.8	16	3.4	41	12	17	6	5	20	7.0					
COLD BAY	96	1002.0	1005.9	31	22	26.5	-1.3	44	4	12	27	0	30	23	83	1.60	-0.72	0.46	14	10	3.0	23	52	13	16	5	11	16	6.4					
FAIRBANKS	436	994.9	1013.5	-7	-24	-15.3	-4.2	13	22	-44	29+	0	31	-25	59	0.40	-0.49	0.10	11	13.0	22	0.2	32	15	24	3+	10	7	14	6.0				
JUNEAU	12	1005.1	1005.9	29	17	23.1	-2.0	42	10	-2	25	0	31	17	79	4.05	0.08	1.19	20	0	0.0	0	38.2	9	7.6	10	37	12	10	9	21	6.8	36	
KING SALMON	49	1004.4	1006.4	17	-2	7.6	-5.8	37	16	-29	3	0	30	1	74	0.93	-0.14	0.34	11	7.9	7	2.8	5	47	8	17	12	3	15	5.6				
KOTZEBUE	10	1009.5	1010.1	9	-6	1.5	7.2	31	21	-29	3	0	31	-3	78	0.28	-0.11	0.13	9	0	0.0	0	8.7	25	10.7	11	63	12	4	8	5	18	6.6	
MC GRATH	344	998.3	1012.1	-1	-21	10.0	1.8	20	24	-43	15+	0	31	-18	70	3.42	-0.84	0.38	3	0	0.0	0	9.0	20	0.0	0	12	3	28+	14	3	17	6.2	
NOME	13	1006.8	1007.7	20	4	12.0	7.6	31	21	-32	2	0	31	9	84	0.58	-0.17	0.17	9	0	0.0	0	6.2	18	7.3	8	54	9	4	21	7.5	26		
ST. PAUL ISLAND	22	1001.7	1002.6	33	25	28.5	3.5	40	3	15	2+	0	28	24	80	2.02	0.21	0.60	19	0	0.0	0	10.2	3	6.2	16	60	14	9	2	10	19	7.7	
SHEMYA	122	991.2	994.9	35	27	30.5	-0.4	42	2	19	13	0	28	27	83	0.90	0.20	0.34	20	13.8	4	9.7	21	95	19	3	22	8.1						
YAKUTAT	28	1000.7	1001.7	27	11	18.8	-8.5	38	10+	-10	28+	0	31	15	86	8.79	-2.07	2.19	14	0	0.0	0	68.4	47	4.1	11	32	28	7	7	6	18	6.8	
ARIZONA																																		
FLAGSTAFF	6993	788.0	1021.8	44	14	29.1	1.8	57	15	-5	7	0	31	14	58	0.25	-0.90	0.70	2	0	0.0	0	9.8	9	1.0	15	25	21	25	13	6	12	5.1	
PHOENIX	1117	979.3	1018.9	67	34	50.7	1.0	79	28	21	7	0	30	27	47	0.25	-0.48	0.25	1	0	0.0	0	2.3	10	0	0	25	NE	11+	16	5	10	4.5	85
TUCSON	2584	928.9	1018.0	67	36	51.4	1.6	81	28	20	7	0	30	19	34	0.04	-0.78	0.04	1	0	0.0	0	3.7	14	32	E	11	18	5	8	3.7	90		
WINSLOW	4894	855.1	1024.8	48	15	31.2	0.2	67	30	-5	2	0	28	15	60	0.10	-0.33	0.10	1	0	0.0	0	1.7	20	4.2	20	5	14	6	11	5.1			
YUMA	194	1011.9	1019.2	69	41	55.1	1.7	79	30	32	1	0	24	35	60	0.25	-0.14	0.25	1	0	0.0	0	4.8	1	26	N	2	17	8	6	3.5	95		
ARKANSAS																																		
FORSYTH	447	1003.1	1020.2	57	25	41.0	1.2	78	23	10	9	0	25	28	65	0.99	-1.67	0.96	3	1	0.1	T	1.4	27	42	6	12	7	12	5.2	65			
LITTLE ROCK	257	1011.2	1020.6	53	30	41.7	1.1	75	23	11	18	0	21	33	72	2.13	-3.09	1.16	7	3	1.6	2	1.8	23	31	S	6	10	8	13	5.8	62		
TEXARKANA	391	1007.5	1021.1	57	36	46.6	1.5	77	22	17	19	0	16	34	65	1.79	-3.05	0.68	5	3	0.0	0	4.4	21	2	10	9	12	5.7					
CALIFORNIA																																		
BAKERSFIELD	475	1004.1	1022.2	57	36	46.6	-3.8	68	20	25	18	0	10	38	75	0.96	-0.21	0.82	3	0	0.0	0	7.6	7	1.3	4	23	15	24	7	9	15	6.3	
BISHOP	4128	876.7	55	25	39.8	3.0	69	15	15	27+	0	27	0	15	1	1.64	-0.65	0.54	6	0	0.0	0	0.0	0	0	0	0	0	0	0	0			
BLUE CANYON	5280		45	33	38.7	1.6	63	14	19	23+	0	15	0	15	1	20.06	-8.36	8.74	14	3	0.0	0	53.0	38	46	18	21	7	6	18	7.1			
EUREKA U	43		53	42	47.4	2.0	60	26	31	6	0	1	0	1	8.87	-2.17	2.11	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
FRESNO	328	1009.8	1021.9	55	37	46.1	0.0	64	15	26	7	0	10	39	81	2.21	-0.18	0.92	6	1	0.0	0	0.0	0	0	0	0	0	0	0	0	0		
LONG BEACH	34	1018.6	1020.0	66	43	54.6	1.5	78	10	35	19+	0	0	41	67	3.77	-3.77	1.78	3.06	3	0	0	0	1.3	12	29	SE	24	4	13	14	6.9	51	
LOS ANGELES	97	1015.9	1019.4	65	48	56.6	2.2	79	10	41	8	0	0	44	69	2.71	-0.05	1.47	4	9	0	0	0	0	0	0	0	0	0	0	0	0	0	
LOS ANGELES U	270		70	49	59.2	3.4	80	11	40	8	0	0	0	0	0	5.93	-2.86	3.69	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MT SHASTA R	3544		44	28	35.9	2.6	56	10	11	22	0	24	0	74	7.61	-1.25	2.26	13	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OAKLAND	6	1020.7	1021.0	56	45	50.2	2.2	64	17	38	6+	0	0	41	73	8.90	-5.07	3.38	9	1	0.0	0	1.6	19	28	27	4	6	8	17	6.9			
RED BLUFF	342	1008.1	1021.1	56	38	47.1	1.6	73	14	30	22	0	6	37	74	7.63	-3.34	2.14	12	0	T	0	0.7	27	36	SE	29+	5	6	20	7.5	52		
SACRAMENTO	17	1020.3	1021.1	54	38	45.9	0.7	63	16	29	2	0	8	40	84	8.42	-5.24	3.41	11	2	0.0	0	2.0	15	58									



## CLIMATOLOGICAL DATA

ENGLISH UNITS

JANUARY 1967

State and Station	Elevation (ground)	Pressure			Temperature						Precipitation						Wind			No. of days (sunrise to sunset)		Sky cover, tenth (sunrise to sunset)	Possible sunshine									
		Station & Sea level	Ft.	Mb.	Average maximum		Average minimum		Departure from normal		Highst Date	Lowest Date	Max. 90° F. or above	Min. 32° F. or below	Average dew point % F.	Average relative humidity Total	Departure from normal	Greatest in 24 hours Total	No. of days .01 inch or more With thunderstorms	Snow, Sleet Total	Maximum depth on ground	Resultant speed M.p.h.	Resultant direction	Speed M.p.h.	Direction	Date	Clear, 0-3 Cloudy, 8-10					
					Average	Minimum	Average	Minimum	Average	Minimum							Average	Max. 90° F. or above	Min. 32° F. or below	Average dew point % F.	Average relative humidity Total	Departure from normal	Greatest in 24 hours Total	No. of days .01 inch or more With thunderstorms	Snow, Sleet Total	Maximum depth on ground	Resultant speed M.p.h.	Resultant direction	Speed M.p.h.	Direction	Date	Clear, 0-3 Cloudy, 8-10
INDIANA																																
EVANSVILLE	381	1005.4	1019.8	47	27	36.9	27	72	23	-5	18	0	24	73	1.09	-2.89	0.63	4	1	0.1	T	4.5	21	31	5	7	8	17	6.5	53		
FORT WAYNE	791	986.5	1017.6	36	21	28.1	1.1	61	24	-1	18	0	28	76	1.93	-0.74	1.31	14	0	5.6	3	7.3	24	34	7	1	10	20	8.0	43		
INDIANAPOLIS	792	988.2	1018.3	41	24	32.6	3.5	70	24	-3	18	0	24	75	1.81	-1.24	1.18	8	0	2.4	1	5.4	23	31	25	6	7	18	7.4	34		
SOUTH BEND	773	987.8	1016.6	35	23	29.0	3.4	63	24	-2	18	0	27	73	3.56	-1.36	2.61	15	1	6.5	23	28	25	25+	3	5	23	8.3				
IOWA																																
BURLINGTON	692	981.4	1017.3	37	18	27.0	2.6	65	24	-10	18	0	28	70	2.12	-0.48	4	1	14.0	4.6	27	26	3	26	7	8	16	6.3				
DES MOINES	938	981.4	1017.3	33	14	23.7	3.8	52	24	-13	18	0	30	82	0.77	-0.53	0.41	9	1	4.0	5	3.3	29	39	16	8	7	16	6.6	57		
DUBUQUE	1056	975.3	1016.6	30	13	21.5	2.3	59	24	-23	18	0	29	80	1.80	-0.03	0.82	7	1	4.8	8	31	25	7	5	19	7.3					
SIOUX CITY	1095	975.6	1017.3	30	9	19.4	0.7	42	24	-19	18	0	31	85	0.41	-0.37	0.20	11	1	3.9	9	2.5	32	56	16	5	6	20	7.3	50		
WATERLOO	868	983.1	1016.3	30	11	20.2	2.3	54	24	-26	18	0	31	78	1.53	-0.38	1.23	7	1	2.6	6	2.9	27	44	29	16	7	6	18	7.0		
KANSAS																																
CONCORDIA	1470	963.1	1017.7	39	18	28.4	0.9	59	24	-5	8	0	29	79	0.38	-0.32	0.19	7	1	2.9	10	3.2	25	34	NW	7+	11	13	5.7	59		
DODGE CITY	2582	924.5	1017.5	47	22	34.5	3.4	78	24	-2	8	0	27	63	0.32	-0.25	0.19	5	0	4.1	3	3.0	25	38	N	2	13	11	5.2	66		
GOODLAND	3650	886.9	1016.8	48	19	33.5	6.1	73	22	0	8+	0	31	65	0.16	-0.23	0.08	4	0	4.3	1	5.1	26	46	31	6	7	13	6.0			
TOPEKA	876	985.8	1018.4	43	20	31.5	2.7	73	23	4	18	0	27	61	1.06	-0.04	1.01	4	2	3.4	4	3.2	26	38	SW	24	9	5	17	6.0	67	
WICHITA	1321	969.2	1018.6	46	23	34.3	2.3	75	22	6	8	0	27	66	0.28	-0.53	0.28	2	1	2.1	4	2.3	24	39	SW	24	14	7	10	4.8	68	
KENTUCKY																																
COVINGTON	869	986.8	1019.1	45	26	35.4	3.8	69	26+	5	18	0	23	70	0.75	-2.81	0.44	6	0	2.5	1	6.8	24	29	28	27+	4	10	17	7.2		
LEXINGTON	966	983.4	1020.0	46	29	37.3	2.8	71	24	8	18	0	20	69	1.35	-3.59	0.54	9	0	1.5	1	7.0	21	29	23	27	6	7	18	6.7		
LOUISVILLE	477	1001.4	1019.5	46	27	36.3	1.3	71	23	5	18	0	23	65	1.11	-2.99	0.68	4	0	0.4	1	5.5	24	31	SW	24	6	11	14	6.6	55	
LOUISIANA																																
ALEXANDRIA	92	1017.6	1022.0	58	36	46.7	-3.6	76	24	22	12	0	16	79	1.99	-3.33	1.14	9	1	0.0	0	0.5	32	28	23	26	7	4	20	7.2		
BATON ROUGE	64	1019.0	1021.7	62	41	51.5	-1.4	80	26+	28	16+	0	7	40	69	2.75	-2.03	1.37	8	2	0.0	0	1.4	5	25	19	26	5	7	19	7.1	
LAKE CHARLES	9	1021.0	1021.9	62	43	52.5	-1.2	78	31+	32	16+	0	3	44	78	1.70	-2.74	1.06	7	1	0.0	0	1.7	7	21	21	26	6	7	18	7.1	
NEW ORLEANS	3	1202.7	1021.5	61	44	52.5	-2.1	78	26	31	24+	0	4	46	79	4.22	-0.38	1.76	8	1	0.0	0	2.6	3	23	19	26	8	5	18	6.7	
SHREVEPORT	254	1011.5	1021.0	58	37	47.6	0.1	78	23	21	19	0	17	71	1.36	-3.44	0.70	6	1	0.0	0	1.9	20	37	22	26	6	5	20	6.9	53	
MAINE																																
CARIBOU	624	991.2	1016.1	23	5	14.3	3.8	38	26+	-20	19	0	31	74	2.23	-0.12	0.92	19	10	0	27.8	27	3.1	30	30	NW	30	4	4	23	8.0	
PORTLAND	47	1013.9	1016.1	34	15	24.4	2.6	45	26+	-7	19	0	31	18	2.52	-1.85	1.35	10	0	12.4	7	3.1	30	30	SW	30	8	5	18	6.7	42	
MARYLAND																																
BALTIMORE	148	1013.2	1019.0	46	29	37.4	2.6	75	25	13	20	0	24	65	0.99	-2.44	0.66	4	1	0.4	1	4.4	27	47	W	29	9	11	11	5.8	51	
MASSACHUSETTS																																
BLUE HILL OBS R	529	39	25	32.3	5.3	61	23	3	19	0	24	0	30	71	1.96	-2.53	0.91	10	1	2.4	4	43	NE	27+	5	2	24	8.0				
BOSTON	15	1015.6	1016.6	41	29	35.1	5.2	62	23	7	19	0	20	24	65	2.28	-1.66	1.15	11	0	0.5	1	6.8	28	34	NE	7	5	19	6.9	42	
NANTUCKET	43	1016.3	1016.7	43	28	35.2	2.2	63	24	9	19	0	22	28	76	2.36	-1.86	0.86	9	2	0.7	1	4.8	27	38	SW	6	8	17	6.7	46	
PITTSFIELD	1170	987.5	1016.6	35	17	26.3	4.5	56	23	-5	19	0	27	78	1.74	-1.23	0.62	14	1	2.5	5	6.3	27	29	31	18	7	5	19	6.9		
WORCESTER	986	978.7	1016.6	36	23	29.4	5.4	59	23	1	19	0	26	75	2.38	-1.33	1.13	12	0	2.5	5	6.3	27	29	31	18	7	5	19	6.9		
MICHIGAN																																
ALPENA	689	988.2	1014.4	31	12	21.3	1.6	49	25	-18	30	0	30	71	3.15	-1.20	1.30	17	1	32.6	17	2.3	24	35	NE	27	5	2	24	8.0	29	
DETROIT	619	985.6	1014.6	36	26	30.0	3.1	61	23	-2	18	0	25	76	0.5	-0.74	1.31	14	0	5.6	3	6.7	25	29	23	25+	4	4	22	7.6	37	
DETROIT M WAYNE CO	693	991.2	1016.1	36	22	29.3	2.8	61	23	2	18	0	26	23	77	2.34	-0.41	1.72	11	0	5.4	4	6.7	25	36	W	17	4	5	22	7.6	37
DETROIT WILLOW RUN	711	987.5	1016.6	35	20	27.4	0.8	59	25+	-	18	0	29	72	2.31	-0.37	1.84	9	0	5.6	5	8.1	24	30	4	26+	4	4	23	7.7		
FLINT	770	986.8	1015.6	34	18	26.0	1.5	57	27	-3	30	0	29	74	2.41	-0.71	1.81	15	0	2.7	6	3.5	23	27	17	4	5	22	8.2			
GRAND RAPIDS	784	985.4	1015.4	36	21	28.6	4.6	62	24	-10	18	0	29	23	78	1.94	-0.03	0.86	17	1	29.8	16	5.6	22	46	SW	16	4	5	25	8.5	29
HOUGHTON LAKE	1149	971.2	1014.8	30	13	21.7																										



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State and Station		Pressure			Temperature									Precipitation						Wind			No. of days (sunrise to sunset)											
		Elevation (ground)	Station Ø	Sea level	Average maximum	Average minimum	Average	Highest	Date	Lowest	Date	No. of days	Max. 90° F. or above	Min. 32° F. or below	Average dew point	Total	Departure from normal	Greatest in 24 hours	No. of days	Snow, Sleet	Fastest mile	Resultant speed	Resultant direction	Speed	Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10	Sky cover, tenths (sunrise to sunset)	Possible sunshine			
NEW YORK		Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.		°F.																								
ALBANY	275	1006.4	1017.5	36	18	27.0	4.3	53	24	-5	19	0	29	20	72	1.22	1.25	0.65	11	5.7	13	5.0	25	33	NW	29	4	5	22	7.5	37			
BINGHAMTON	1590	956.0	1016.4	35	23	29.0	5.2	63	25	0	19	0	26	23	78	1.60	1.90	1.04	14	7	5.2	24	40	27	E	27	0	5	26	8.8	36			
BUFFALO	705	989.5	1016.0	36	23	29.8	5.3	61	25	4	19	0	26	24	79	1.18	1.66	0.36	21	11.6	9.8	24	37	35	27	W	17	2	3	26	8.9	27		
NEW YORK U	132	1014.2	1017.4	43	32	37.4	4.2	68	24	13	19	0	19	27	69	1.39	1.92	0.85	9	1	1.4	1	4.4	28	35	NE	27	9	27	7	10	14	6.3	48
J.F. KENNEDY	13	1017.3	1018.1	43	30	36.4	4.6	64	24	11	19	0	21	28	74	1.47	1.76	0.83	8	1	2.8	1	4.5	29	44	NE	27	8	16	15	6.4	37		
NEW YORK LA GUARDIA	11	1016.3	1018.2	44	33	38.2	4.6	68	24	13	19	0	16	27	65	1.06	2.25	0.62	9	0	0.9	T	5.1	29	41	NE	27	2	6	23	8.4	37		
ROCHESTER	547	995.9	1016.8	38	24	31.1	5.9	68	25	5	31+	0	25	21	66	0.94	1.46	0.33	15	0	12.7	4	6.9	24	37	SW	25	2	4	25	8.4	28		
SYRACUSE	410	1001.0	1016.2	36	23	30.5	6.6	70	25	-5	19	0	23	22	72	1.47	1.68	0.46	15	0	18.3	11	4.7	25	31	W	17	2	4	25	8.4	28		
<b>NORTH CAROLINA</b>																																		
ASHEVILLE	2140	942.4	1020.1	51	26	38.7	1.1	71	23	13	12	0	27	29	76	2.02	2.15	1.03	9	2	1.5	1	3.5	35	30	35	29	9	12	10	9.6	68		
CAPE HATTERAS R	7	1020.0	1020.2	56	41	48.5	1.9	71	27	29	12+	0	2	41	78	4.08	0.18	0.90	13	1	0.0	0	4.9	31	34	ASW	28+	10	8	13	6.1	46		
CHARLOTTE	736	992.2	1020.3	54	33	43.3	0.6	74	24	20	12	0	18	34	72	2.76	0.77	1.20	10	1	T	T	2.1	24	32	SW	27	11	8	12	5.4	70		
GREENSBORO	897	987.8	1020.3	54	32	43.0	3.3	76	24	15	20	0	16	34	74	1.84	1.56	0.60	7	1	0.8	1	3.2	24	34	SW	27	10	8	12	5.9	64		
RALEIGH	434	1004.1	1020.3	55	35	44.8	3.2	77	24	16	12	0	15	35	71	1.64	1.58	0.37	8	1	0.5	1	3.2	24	28	SW	27	8	10	13	6.1	54		
WILMINGTON	28	1019.6	1021.1	61	40	50.4	2.5	77	24	26	12	0	6	41	73	3.89	1.04	0.86	11	0	0.0	0	1.7	27	40	SW	27	8	10	13	6.0	58		
<b>NORTH DAKOTA</b>																																		
BISMARCK	1647	954.3	1017.1	24	-1	11.2	1.3	42	11	-40	17	0	31	4	67	0.85	0.41	0.22	10	0	12.7	6	3.6	32	47	NW	16	3	5	23	7.9	47		
FARGO	896	982.1	1016.9	20	-1	9.3	2.0	37	11	-27	18	0	31	3	75	1.03	0.50	0.36	13	0	15.1	11	2.4	34	56	N	16	5	21	7.7	49			
WILLISTON	1899			23	0	11.7	3.4	40	21+	-34	17	0	31			1.42	0.87	0.49	13	0	16.6	7	45	W	8	2	9	20	7.8	39				
<b>OHIO</b>																																		
AKRON	1208	971.9	1017.6	40	25	32.3	4.0	66	25+	4	18	0	22	24	73	1.16	1.72	0.56	9	1	4.9	3	7.3	23	32	18	7	2	8	21	9.0	39		
CINCINNATI OBS	761			44	28	36.0	2.3	70	24	4	18	0	23	24	73	0.64	3.03	0.38	5	2.0	1	0.0	2.4	24	SE	7	0	9	22	8.3	35			
CLEVELAND	777	987.5	1017.3	40	25	32.4	4.0	68	23	7	18	0	24	24	72	0.97	1.70	0.54	12	0	2.0	1	8.4	23	30	SW	25+	0	9	22	8.3	35		
COLUMBUS	812	988.2	1018.9	42	27	34.8	4.9	68	23	7	18	0	23	27	72	0.78	2.38	0.44	7	0	2.8	2	6.2	24	34	SW	7	4	6	21	7.9	39		
DAYTON	1022	981.0	1018.3	42	26	33.9	4.3	69	23	3	18	0	24	23	67	0.69	2.49	0.31	8	0	3.6	2	6.9	22	32	SE	7	2	8	21	7.8	45		
MANSFIELD	1295			38	23	30.7	3.4	63	23	0	18	0	25	22	70	0.74	2.48	0.38	7	0	1.4	1	9.4	24	36	SW	7	3	7	21	7.9	40		
TOLEDO	676	991.5	1017.5	37	22	29.1	2.8	62	23	0	18	0	29	21	72	1.29	1.04	0.84	13	0	4.1	2	6.9	24	32	SW	17	3	6	22	7.8	40		
YOUNGSTOWN	1178	973.6	1017.5	37	22	29.5	2.2	62	25	1	18	0	25	24	77	1.26	1.93	0.57	13	0	8.1	5	6.5	24	27	SW	20	7	1	7	23	8.3		
<b>OKLAHOMA</b>																																		
OKLAHOMA CITY	1285	971.6	1018.9	55	28	41.8	4.8	79	22	11	18+	0	22	26	59	0.77	0.54	0.77	2	2	T	T	1.6	21	38	NW	26+	16	6	6	3.8	84		
TULSA	650	994.2	1019.3	53	26	39.6	3.4	76	24	9	18	0	25	26	64	1.51	0.20	1.49	3	2	0.7	T	3.6	21	36	SW	24	14	9	9	4.0	77		
<b>OREGON</b>																																		
ASTORIA	8	1015.2	1016.1	49	39	43.8	3.1	54	28+	27	31	0	2	41	87	14.95	3.24	2.45	28	2	T	T	4.8	20	37	19	19	0	1	30	9.4			
BURNS U	4151	873.7	1019.7	40	23	31.1	6.3	50	15	5	23	0	28	25	78	2.15	0.53	0.72	14	0	15.7	10	2.6	26	37	19	19	0	3	22	7.9			
EUGENE	359	1005.1	1018.7	50	39	44.4	5.3	57	27	30	30	2	2	40	87	10.33	4.00	2.54	21	0	6.4	18	35	19	19	0	3	28	9.5					
MEACHAM	4050	875.0	1018.3	35	26	30.1	4.1	47	29	16	23+	0	28	25	85	6.16	1.96	1.28	24	0	42.0	19	2.0	22	34	SW	7	4	6	21	7.9			
MEDFORD	1298	972.6	1021.2	46	33	39.6	4.2	57	29	24	17	0	16	34	83	5.44	2.30	1.36	14	0	1.1	1	0.7	15	26	20	19	1	4	26	9.0			
PENDLETON	1482	962.8	1017.3	49	36	42.4	10.2	63	29	30	23+	0	9	33	72	1.59	0.17	0.34	16	0	1.1	1	5.5	23	35	SW	26	1	2	4	25	8.4		
PORTLAND	21	1016.6	1017.8	49	38	43.6	5.2	58	28	31	31	0	1	40	87	6.21	0.84	1.14	26	1	1	1	6.5	16	47	SW	26	0	1	30	9.6	16		
SALEM	196	1010.5	1018.0	50	38	44.1	5.6	57	29+	29	24	0	4	39	82	7.29	0.59	2.35	23	0	0	1	8.6	18	35	SW	29	0	2	29	9.3			
SEXTON SUMMIT R	3836	883.8	1018.9	41	30	35.2	1.1	56	14	21	5+	0	0	5.6	75	5.65	0.07	1.12	10	0	25.9	10	0	0	15	19	2	2	2	27	8.9			
<b>PACIFIC AREA</b>																																		
CANTON ISLAND	8			87	78	82.6	-0.5	89	5	76	3	0	0	74	79	0.28	-2.33	0.24	6	0	0.0	0	0.0	0	18.2	7	9	18	4	4.6				
ENIWETOK	13	1008.5	1009.0	86	77	81.6	0.4	87	25+	75	16+	0	0	26	74	2.28	1.26	0.85	16	0	0.0	0	0.0	0	18.2	7	3	2	4	4.9				
TAGUAC GUAM R	361			83	72	77.5	-0.7	85	12	69	18+	0	0	27	74	5.26	-0.63	0.77	22	0	0.0	0	0.0	0	18.2	7	3	2	4	4.9				
JOHNSTON	7	1013.5	1014.0	80	74	77.0	-0.1	83	26+	66	7	0	0	28	73	0.87	-3.02	1.19	14	0	0.0	0	0.0	0	18.2	7	3	2	4	4.9				
KOROR R	94	1004.4</																																

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State and Station	Elevation (ground)	Pressure				Temperature						Precipitation						Wind			No. of days (sunrise to sunset)													
		Station $\phi$	Mb.	Mb.	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days	Max. 90° F. or above	Min. 32° F. or below	Average dew point	Total	In. in. in.	Greatest in 24 hours	No. of days	Snow, Sleet	Resultant speed	Resultant direction	Fastest mile									
PACIFIC AREA	ft.	Mb.	Mb.	°F.	F.	°F.	F.	°F.	- 0.7	87	2	72	29+	0	0	75	84	12.02	4.15	4.04	25	1	0.0	0	11.4	5	25	NE	27	0	0	31	9.9	52
YAP R	62	1006.1	1008.0	85	75	79.8	-	- 0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
PENNSYLVANIA																																		
ALLENTOWN	387	1004.1	1018.6	40	23	31.3	2.3	66	24	6	19	0	26	22	70	1.76	- 1.41	1.24	7	1	0.7	5	3.5	27	33	28	29	8	15	6.3				
ERIE	731	989.2	1016.8	39	26	32.8	5.5	64	25+	2	19	0	23	23	68	0.90	- 1.77	0.26	16	0	6.0	2	9.4	23	32	17	7	2	4	25	8.7			
HARRISBURG	338	1005.4	1018.7	41	26	33.6	2.3	71	25+	11	19+	0	26	24	70	1.81	- 0.95	1.34	8	1	1.6	3	3.6	29	37	14	27	1	9	15	6.5	58		
PHILADELPHIA	5	1018.0	1019.0	44	28	36.0	3.7	69	24	13	19	0	23	27	71	1.67	- 1.65	1.22	6	1	0.6	1	3.9	29	30	28	28+	7	10	14	6.5	52		
PITTSBURGH	1137	972.9	1018.1	41	24	32.3	2.4	66	25	7	18	0	24	24	72	1.06	- 1.91	0.47	9	0	4.5	4	7.2	23	30	21	27	4	7	20	7.8	29		
READING U	266			44	30	37.1	4.4	73	25	12	19	0	21	25	75	1.46	- 1.61	1.05	7	0	0.2	6	50	E	27	11	8	12	5.5	51				
SCRANTON	930	982.7	1018.1	39	26	32.6	4.9	67	25	6	19	0	23	25	75	1.11	- 1.18	0.76	7	1	8.3	5	3.1	24	34	27	27	4	5	22	7.7	39		
WILLIAMSPORT	524	998.3	1018.1	39	24	31.4	2.6	69	25	6	19	0	26	26	80	1.35	- 1.32	0.83	10	1	3.0	3	2.2	28	29	11	27	2	8	21	7.7			
RHODE ISLAND																																		
BLOCK ISLAND	110			42	29	35.8	3.7	56	24	12	19	0	19	24	70	1.90	- 1.94	1.25	12	9	0.5	T	5.2	28	29	23	21	7	8	16	6.6			
PROVIDENCE	51	1014.9	1017.2	42	26	33.7	4.5	65	24	8	19	0	24	24	70	1.60	- 2.21	0.91	10	0	1.3	1	5.2	28	29	23	21	7	4	20	6.7	53		
SOUTH CAROLINA																																		
CHARLESTON	40	1019.3	1020.9	63	38	50.6	0.8	78	26	25	12	0	13	40	72	4.93	- 2.39	1.35	10	0	0.0	0	1.4	27	40Y	SW	27	10	8	13	5.8	54		
CHARLESTON U	9			59	44	51.6	0.1	71	27	33	20+	0	0	0	76	4.87	- 2.47	1.37	11	0	0.0	0	2.2	27	31	W	27							
COLUMBIA	241	1012.5	1020.8	60	34	46.9	0.0	76	26+	21	12	0	14	37	75	2.79	- C.23	0.89	11	0	0.0	0	2.2	27	31	SW	27	10	8	13	5.6	60		
GNVLE-SPARTANBURG	957	985.8	1021.1	55	33	44.0	0.3	76	24	20	12	0	16	33	68	3.97	- C.31	1.90	10	1	0.5	T	2.1	26	44	SW	27	13	6	12	5.3	61		
SOUTH DAKOTA																																		
ABERDEEN	1296	967.8	1016.8	28	2	15.1	4.3	42	21+	-26	17	0	31	8	73	0.50	- 0.16	0.21	7	0	7.9	4	2.7	33	58	34	16	4	4	23	7.8			
HURON	1282	967.8	1016.6	31	8	19.5	7.0	50	22	-14	8	0	31	13	76	0.39	- 0.09	0.24	8	0	6.7	6	2.4	27	57	NW	16	7	3	21	7.4	50		
RAPID CITY	3162	901.5	1015.6	39	17	27.9	5.9	59	22+	-1	18+	0	30	19	71	0.67	- 0.11	0.19	9	0	4.0	3	6.0	31	65	SW	22	7	7	17	6.9	47		
SIOUX FALLS	1418	962.8	1016.4	29	6	17.6	2.4	45	22	-22	18	0	31	12	75	0.75	- 0.13	0.49	6	0	6.0	9	3.0	31	45	32	16	6	8	17	7.3			
TENNESSEE																																		
BRISTOL	1507	965.1	1020.9	49	28	38.2	- 0.1	72	26	14	12	0	22	29	75	2.00	- 1.69	0.75	8	0	4.6	4	2.6	25	28	24	27	6	9	16	6.6	53		
CHATTANOOGA	665	995.9	1021.4	51	31	41.0	- 0.7	71	25+	17	12	0	19	33	78	3.02	- 2.59	1.65	8	2	T	T	1.3	24	29	S	6	10	7	14	6.0	53		
KNOXVILLE	980	984.8	1020.7	51	32	41.9	0.5	72	26	19	12	0	18	33	74	2.67	- 2.21	1.34	9	2	2.2	1	3.3	27	32	W	27	6	10	15	6.4	43		
MEMPHIS	258	1010.8	1021.5	52	33	42.2	0.7	73	24	13	18	0	20	30	64	2.23	- 3.84	1.09	7	2	0.6	1	4.3	22	36	SE	6	8	7	16	6.1	57		
NASHVILLE	590	998.6	1020.8	52	32	42.3	2.4	73	25+	15	18	0	21	30	65	1.62	- 3.87	0.95	5	1	1.2	1	4.7	22	32	S	7	7	7	17	6.6	54		
OAK RIDGE R	905			50	31	40.5	0.6	70	23	18	12	0	21	0	75	3.78	- 2.16	2.25	9	4.2	3	50Y		27	9	5	17	6.7						
TEXAS																																		
ABILENE	1762	956.7	1019.2	64	32	48.0	3.4	84	29	14	8	0	18	28	49	T	- 0.88	T	0	0	0.0	0	4.5	22	42	N	6	16	8	7	3.8	90		
AMARILLO	3604	891.0	1016.3	57	24	40.7	4.0	79	22	6	9	0	26	17	45	T	- 0.65	T	0	0	0.0	T	6.3	26	54	NW	6	13	11	7	4.5	88		
AUSTIN	597	998.6	1020.9	62	40	50.9	0.5	78	30	27	19+	0	10	36	61	0.25	- 2.10	0.18	3	0	0	T	0.3	25	30	NW	26	12	4	15	5.6			
BROWNSVILLE	19	1019.6	1020.1	68	49	58.5	- 2.9	80	26	33	9+	0	0	51	79	1.69	- 0.34	1.10	6	0	0	T	0.5	14	30	S	6	9	6	16	6.1	43		
CORPUS CHRISTI	41	1019.3	1020.8	66	46	56.1	- 1.3	84	6	25	4	0	2	46	75	2.63	- 1.00	1.30	8	0	1.0	T	2.5	10	40	S	6	9	6	16	6.3	40		
DALLAS	681	1002.4	1020.2	61	37	49.4	3.5	82	24	23	8	0	14	33	59	0.34	- 1.98	0.20	3	1	0.0	0	3.3	19	33	NW	26+	15	6	10	4.8	68		
DEL RIO	1026	983.7	1020.5	65	38	51.5	0.2	84	30	25	8	0	9	27	46	0.02	- 0.87	0.02	1	0	0.0	0	1.6	11	23	33	17	14	6	11	4.5			
EL PASO	3918	884.5	1019.3	59	24	41.6	- 1.3	74	31	9	9	0	25	11	30	0.00	- 0.46	0.00	0	0	0.0	0	1.1	33	49	W	6	23	3	5	2.8	97		
FORT WORTH	537	999.3	1020.3	61	36	48.3	2.8	80	24	20	9	0	17	31	58	0.28	- 1.76	0.18	2	1	0.0	0	3.2	22	31	33	26	16	5	10	4.5	47		
GALVESTON U	7			59	48	53.3	- 1.6	69	31	37	13+	0	0	0	0	1.60	- 1.86	0.99	8	0	0.0	0	0	0	29	NE	7							
HOUSTON U	41			63	47	54.8	0.2	78	24	34	9	0	0	0	0	1.89	- 1.83	1.08	7	0	0.0	0	0	0	0									
HOUSTON	50	1019.0	1021.2	66	44	54.9	1.3	83	23	26	4	0	1	41	67	2.41	- 1.37	1.53	7	0	0	T	0.6	33	31	20	6	7	4	20	7.1	44		
LUBBOCK	3254	904.8	1018.1	59	22	40.7	1.5	80	30	3	9+	0	25	16	43	0.00	- 0.68	0.00	0	0	0.0	0	5.8	26	41	30	6	18	7	6	3.7			
MIDLAND	2851	918.4	1018.6	62	26	43.6	- 0.4	80	30	7	9	0	22	18	43	0.00	- 0.80	0.00	0	0	0.0	0	3.4	23	35	32	6	17	9	5	3.1			
PORT ARTHUR	16	1021.0	1021.6	62	42	51.8	- 1.8	78	31	27	4	0	5	43	78	1.92	- 2.31	0.94	9	0	0.0	0	1.5	6	34	NW	26+	7	7	17	6.9	43		
SAN ANGELO	1903	951.9	1019.7	63	30	46.5	- 0.4	83	31	14	19	0	22	24	45	0.00	- 0.97	0.00	0	0	0.0	0	4.6	23	30	21	20	8	3.5					

**CLIMATOLOGICAL DATA**  
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State and Station	Elevation (ground)	Pressure			Temperature										Precipitation						Wind			No. of days (sunrise to sunset)		Sky cover, tenths (sunrise to sunset)	Possible sunshine %						
		Station Ø	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	Max. 90° F. or above	Min. 32° F. or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours		No. of days	Snow, Sleet	Resultant speed	Resultant direction	Speed	Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10				
																		01 inch or more	With thunderstorms														
UTAH	ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.	Date	°F.	Date	°F.	°F.	%	In.	In.	In.	In.	In.	M.p.h.	M.p.h.	Speed	Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10						
SALT LAKE CITY	4220	874.7	1022.6	38	21	29.4	2.2	51	22+	2	11	0	29	23	75	2.05	0.70	0.66	10	0	30.4	13	4.5	42	S	5	1	1	29	9.2	25		
WENDOVER	4237			38	22	30.1	3.1	53	21+	12	1	0	29	0.40	0.08	0.14	5	1.7	1														
VERMONT	BURLINGTON	332	1003.1	1016.0	32	16	23.9	7.7	49	25	-14	19	0	31	17	74	1.65	0.30	0.74	12	1	20.5	14	2.4	20	S	17	4	2	25	8.3	49	
VIRGINIA	LYNCHBURG	916	985.1	1020.0	51	30	40.5	2.9	74	23	9	20	0	19	29	66	2.18	1.11	1.03	7	1	4.6	4	4.0	25	30	W	27	11	10	10	5.3	58
NORFOLK	22	1019.0	1020.0	54	38	45.7	4.5	77	24	25	31	0	8	36	69	5.44	2.11	3.80	9	0	4.2	4	2.2	26	36	W	27	10	6	15	6.3	68	
RICHMOND	164	1013.9	1019.9	52	30	40.9	2.2	75	25	3	20	0	19	32	75	1.50	1.96	0.43	7	1	6.3	5	2.4	24	27	SW	27	9	9	13	5.8	63	
ROANOKE	1149	976.3	1019.3	51	31	40.8	2.7	73	24	13	20	0	20	26	58	1.25	1.87	0.56	5	1	2.7	2	4.3	28	35	30	27	12	10	9	5.3		
WALLOPS ISLAND	9	1020.0	1020.3	44	32	38.2		64	24	19	20	0	16	31	79	2.39		0.99	7	1	5.8	5	4.2	26	46	NW	29	9	8	14	6.1		
WASHINGTON	OLYMPIA	195	1008.5	1015.9	46	36	40.7	2.6	56	28	24	31	0	9	39	92	12.21	4.36	2.75	25	0	3.3	3	8.1	20	33	18	19	0	3	28	9.4	
QUILLAYUTE	179	1006.1	1013.7	46	38	41.9	3.3	52	10	26	31	0	4	41	94	20.62	5.35	2.50	28	3	T	T	3.6	17	29	SW	29	0	1	30	9.6	18	
SEATTLE TACOMA	400	999.0	1015.5	46	38	42.4	4.1	56	28	29	31	0	3	37	82	9.32	3.59	2.41	23	0	5.9	5	6.6	19	38	19	29	0	3	28	9.4	17	
SPOKANE	2356	929.9	1015.3	39	29	33.9	8.6	53	29	19	6	0	23	28	81	2.44	0.00	0.67	14	1	6.5	2	6.9	20	44	W	15	3	7	21	7.9	30	
STAMPEDE PASS R	3958	875.7		32	25	28.4	4.9	40	28	18	22	0	30	19.81	7.78	3.13	28	114.6	94									0	1	30	9.7		
WALLA WALLA U	949			51	39	44.8	11.6	65	29	32	6+	0	2	2.11	0.22	0.54	17	0.7	F														
YAKIMA	1052	977.0	1016.4	48	30	38.6	11.1	60	13	20	22	0	24	29	72	0.63	0.59	0.43	4	0	1.0	1	3.3	25	32	28	15	6	5	20	7.4		
WEST INDIES	SAN JUAN P.R.	13	1015.2	1017.7	82	71	76.7	2.3	86	1	67	6	0	0	67	74	3.37	1.63	0.85	19	0	3.0	0	9.0	9	34	NE	8	9	21	1	4.7	73
SWAN ISLAND	28			83	74	78.4	3.1	85	20+	71	294	0	0	3.48	0.14	1.40	14	0.0	0									15	8	8	5.0		
WEST VIRGINIA	BECKLEY	2504	928.9	1020.1	44	27	35.5		67	26	9	12	0	23	27	72	1.40		0.60	12	0	9.2	3	6.3	23	40	22	27	6	7	18	7.1	
CHARLESTON	939	984.4	1019.3	49	28	38.5	1.9	73	26	11	19	0	23	29	71	1.21	3.11	0.53	8	0	3.6	1	4.9	23	35	23	27	3	13	15	7.4		
ELKINS	1970	946.2	1019.3	46	22	33.7	1.2	70	26	4	19+	0	24	26	75	1.05	2.57	0.52	11	0	7.2	2	4.5	26	33	28	27	4	7	20	7.8		
HUNTINGTON	827	988.8	1019.6	48	31	39.3	2.7	74	26	11	18	0	21	29	69	1.43	2.22	0.75	7	0	3.4	1	5.0	22	23	23	27	3	14	14	6.9	37	
PARKERSBURG U	615			46	29	37.7	3.1	71	26+	10	18	0	22	3.93	2.41	0.60	5	1	1.0	1													
WISCONSIN	GREEN BAY	682	988.8	1015.4	29	11	20.1	3.3	41	24+	-25	18	0	31	15	78	2.52	1.37	0.98	12	1	15.4	10	4.4	27	35	SW	25	5	5	21	7.6	41
LA CROSSE	651	990.5	1016.2	29	10	19.4	2.9	44	23+	-31	18	0	31	13	75	2.86	1.67	1.31	11	1	18.3	11	1.3	26	35	24	16	5	6	20	7.5		
MAIDISON	858	983.4	1015.9	31	13	22.2	4.7	54	24	-21	18	0	30	15	72	1.63	0.23	0.66	12	1	3.4	9	3.7	26	38	SW	16	5	6	20	7.5	45	
MILWAUKEE	672	989.5	1015.8	33	16	24.5	3.9	57	24	-16	18	0	29	18	75	1.49	0.24	0.47	15	1	13.1	9	5.2	26	45	SW	16	6	7	18	7.3	44	
WYOMING	CASPER	5338	834.1	1016.3	36	18	26.7	3.3	51	29	-8	7+	0	28	16	64	0.58	0.02	0.17	10	0	9.2	3	15.7	22	49	22	20	5	9	17	7.2	
CHEYENNE	6126	808.3	1015.3	42	21	31.4	6.0	56	29+	3	7	0	27	13	47	0.45	0.07	0.36	6	0	5.4	5	11.9	29	59	W	15	7	7	17	6.7	60	
LANDER	5563	825.6	1016.4	38	16	26.6	7.3	51	15	-2	7	0	29	15	65	0.25	0.21	0.21	5	0	5.2	5	2.8	24	73	SW	22	3	11	17	7.5	73	
SHERIDAN	3964	875.4	1016.3	38	13	25.4	4.1	59	20+	-13	7	0	31	13	61	0.61	0.03	0.26	12	0	12.1	5	2.9	30	57	NW	15	3	7	21	7.9	44	

Data from airport unless otherwise specified. U indicates Urban, R indicates Rural, sites.

Precipitation data in column headed "Greatest in 24 hours" are computed on a 24-hour basis without regard to calendar day - data may include precipitation with a measurable amount from the last day of the previous month or the first day of the following month.

Wind directions under resultant direction are in tens of degrees.

Value entered in column "Fastest Mile" is the highest observed 1-minute wind speed when the direction is in tens of degrees. These stations are not equipped with a recording anemometer from which "Fastest Mile" data can be evaluated.

A Maximum hourly average.

B Number of days maximum 70°F. or above for Alaskan Stations.

Y Peak Gust.

+ And also on an earlier date or dates.

Ø Station pressures apply to elevations shown in the "Elevations - Station Pressure" table of the annual issue of this publication.

V Sun below horizon January 1-23, inclusive.

X Sun below horizon January 1-17, inclusive.













**CLIMATOLOGICAL DATA**  
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State and Station	Elevation (ground)	Pressure		Temperature												Precipitation						Wind			No. of days (sunrise to sunset)			Possible sunshine				
		Station Ø	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days	Max. 32.2 °C or above	Min. 0 °C or lower	Average dew point	Average relative humidity %	Total	Departure from normal	Greatest in 24 hours	No. of days	Snow, Sleet	Fastest mile (1.6 kilometers)	Resultant speed	Resultant direction	Speed	Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10	Sky cover tenths (sunrise to sunset)	
WASHINGTON YAKIMA	321	977.0	1016.4	8.9	-1.1	3.7	6.2	15.6	13	-6.7	22	0	24	-1.7	72	15	-15	11	4	0	25	1.5	25	14.3	28	15	6	5	20	7.4	%	
WEST INDIES SAN JUAN P.P. SWAN ISLAND	4 9	1015.2	1017.7	27.8 28.3	21.7 23.3	24.8 25.8	1.3 0.1	30.0 29.4	1 20+	19.4 21.7	6 29+	0 0	0 0	19.4 19.4	74	78 91	-41 4	22 36	1.0 1.4	2	0	4.0	0	15.2	NE	8 15	9 8	21 8	1 8	4.7 5.0	73	
WEST VIRGINIA BECKLEY	763	928.9	1020.1	6.7	-2.8	1.9	19.4	26	-12.8	12	0	23	-2.8	72	36	15	1.2	2	2	234	76	2.8	23	17.9	22	27	6	7	18	7.1		
CHARLESTON	286	984.4	1019.3	2.4	-2.2	3.6	1.1	22.8	26	-11.7	19	0	23	-1.7	71	31	-72	13	8	2	91	25	2.2	23	15.6	23	27	3	13	15	7.4	
ELKINE	670	946.4	1019.3	7.8	-5.6	0.9	2.7	21.1	26	-15.6	19	0	24	-3.3	75	27	-65	13	11	1	183	51	2.0	26	14.8	28	27	4	7	20	7.8	
HUNTINGTON	252	1019.8	8.9	-0.6	4.1	1.5	23.3	26	-11.7	18	0	21	-1.7	69	36	-56	19	7	2	86	25	2.2	22	10.3	23	27	3	14	14	6.9		
PARKERSBURG U	187	988.8	7.8	-1.7	3.2	1.7	21.7	26+	-12.2	18	0	22	-61	15	5	24	-61	15	5	25	25	13.0	54	7							37	
WISCONSIN GREEN BAY	208	988.8	1015.4	-1.7	-11.7	-6.6	1.8	5.0	24+	-31.7	18	0	31	-9.4	78	64	35	25	12	1	427	254	2.0	27	15.6	5W	25	5	5	21	7.6	41
LA CROSSE	198	990.5	1016.2	-1.7	-12.2	-7.0	1.6	6.7	23+	-35.0	18	0	31	-10.6	75	73	42	33	11	1	465	279	0.6	26	15.6	24	16	6	6	20	7.5	
MADISON	262	983.4	1015.9	-0.6	-10.6	-5.4	2.6	12.2	24	-29.4	18	0	30	-9.4	72	61	6	17	12	1	239	229	1.7	26	17.0	5W	16	6	6	20	7.5	45
MILWAUKEE	205	989.5	1015.8	0.6	-8.9	-4.2	2.2	13.9	24	-26.7	19	0	29	-7.8	75	38	-9	12	15	1	333	229	2.3	26	20.1	5W	16	6	7	18	7.3	44
WYOMING CASPER	1627	934.1	1016.3	2.2	-7.8	-2.9	1.8	10.6	29	-22.2	7	0	28	-8.9	64	15	1	4	10	2	234	75	7.0	22	21.9	22	20	6	9	17	7.2	
CHEYENNE	1867	808.3	1015.3	5.6	-6.1	-0.3	3.3	13.3	29+	-16.1	7	0	27	-10.6	47	11	-2	9	6	2	137	127	5.3	29	26.4	X	15	7	7	17	6.7	60
LANDER	1696	825.6	1016.4	3.3	-8.9	-3.0	4.1	10.6	15	-18.9	7	0	29	-9.4	65	6	-5	5	5	1	132	152	1.3	24	32.6	5W	22	2	11	17	7.5	73
SHERIDAN	1208	875.4	1016.3	3.3	-10.5	-3.7	2.3	15.0	20+	-25.0	7	0	31	-10.6	61	15	-1	7	12	307	127	1.3	30	25.5	NW	15	3	7	21	7.9	44	

Data from airport unless otherwise specified. U indicates Urban, R indicates Rural, sites.

Precipitation data in column headed "Greatest in 24 hours" are computed on a 24-hour basis without regard to calendar day - data may include precipitation with a measurable amount from the last day of the previous month or the first day of the following month.

Wind directions under resultant direction are in tens of degrees.

Value entered in column "Fastest Mile" is the highest observed 1-minute wind speed when the direction is in tens of degrees. These stations are not equipped with a recording anemometer from which "Fastest Mile" data can be evaluated.

A Maximum hourly average.

B Number of days maximum 21.1°C. or above for Alaskan Stations.

Y Peak Gust.

+ And also on an earlier date or dates.

Ø Station pressures apply to elevations shown in the "Elevations - Station Pressure" table of the annual issue of this publication.

Data in this table are obtained by conversion from data in the English Units table.

V Sun below horizon January 1-23, inclusive.

X Sun below horizon January 1-17, inclusive.

## **HEATING DEGREE DAYS**

(Base 65°F.)

JANUARY 1967

U indicates Urban, R indicates Rural, sites.

# STORM SUMMARY

JANUARY 1967

STATE	TORNADOES					HAILSTORMS				WINDSTORMS				LIGHTNING				# HEAVY SNOWSTORMS AND BLIZZARDS				# ICE STORMS				ALL OTHER						
	NUMBER	DEATHS	INJURIES	DAMAGE	DEATHS	INJURIES	PROP. ERTY	CROPS	DEATHS	INJURIES	PROP. ERTY	CROPS	DEATHS	INJURIES	PROP. ERTY	CROPS	DEATHS	INJURIES	PROP. ERTY	CROPS	DEATHS	INJURIES	PROP. ERTY	CROPS	DEATHS	INJURIES	PROP. ERTY	CROPS				
Alabama *																																
Alaska *																																
Arizona *																																
Arkansas *																																
California	W2	1	0	0	0					0	1	5	4														0	0	5	3		
Colorado																																
Connecticut *	1	1	0	7	5																											
Delaware																																
Florida *																																
Georgia *																																
Hawaii																																
Idaho *																																
Illinois	8	1	1	3	5					1	4	6	0																			
Indiana																																
Iowa	13	1	1	12	6	0	0	3	0	1	0	5	5	0																		
Kansas																																
Kentucky *																																
Louisiana	1	1	0	0	3					1	1	3	0																			
Maine *																																
Maryland	1	1	0	0	3					0	0	4	0																			
Massachusetts																																
Michigan																																
Minnesota																																
Mississippi	1	1	0	7	5					0	0	4	0																			
Missouri	10	1	5	239	8					0	1	5	0																			
Montana																																
Nebraska *																																
Nevada *																																
New Hampshire																																
New Jersey *																																
New Mexico																																
New York																																
North Carolina																																
North Dakota																																
Ohio																																
Oklahoma	3	1	0	6	5	0	0	4	3	0	6	5	0																			
Oregon										0	1	4	0																			
Pacific Area *										5-10	5	5	3																			
Pennsylvania										0	1	4	0																			
Puerto Rico *										2	2	4	0																			
Rhode Island *										1	0	4	0																			
South Carolina *										0	1	5	0																			
South Dakota										2	2	4	0																			
Tennessee										0	0	2	0																			
Texas										0	0	2	0																			
Utah *										0	0	2	0																			
Vermont *										0	0	2	0																			
U. S. Virgin Is.*										0	0	2	0																			
Virginia										0	0	2	0																			
Washington										0	0	2	0																			
West Virginia										0	0	2	0																			
Wisconsin	1	1	0	0	5					0	0	2	0																			
Wyoming *										0	0	2	0																			

\* No occurrence of storms or unusual weather phenomena.

C Crop damage

W Waterspouts

S Several

F Fog

N Numerous

# Includes heavy sleet storm.

# Freezing drizzle and freezing rain, commonly known as glaze.

¶ For breakdown of "All Others", and for detailed listing of other storms, see the U. S. Weather Bureau monthly publication STORM DATA.

† Storm damages are placed in categories varying from 1 to 9 as follows:

1 Less than \$50

2 \$50 to \$500

3 \$500 to \$5,000

4 \$5,000 to \$50,000

5 \$50,000 to \$500,000

6 \$500,000 to \$5,000,000

7 \$5,000,000 to \$50,000,000

8 \$50,000,000 to \$500,000,000

9 \$500,000,000 to \$5,000,000,000

# GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

## JANUARY 1967

Elmer R. Nelson, Office of Hydrology

The most important flooding during January occurred in California in the San Francisco Bay region, along the Russian and Napa Rivers. Severe flooding along the Russian River was confined to the area from Healdsburg downstream through the Guerneville resort area. The high water necessitated the evacuation of about 100 persons. The damages were estimated at \$1.5 million.

### ATLANTIC SLOPE DRAINAGE

Rainfall over eastern North Carolina during January averaged 1/2 inch below normal. Precipitation ranged from near 1 inch above normal in the extreme lower portion to some 2 inches below normal over the upper reaches of the Neuse and Cape Fear Rivers. A new low water record of 2.5 feet was established on the Little River at Ft. Bragg, N. C., which was 1.0 feet lower than the previous low of 3.5 feet recorded in 1965.

The Lumber River at Lumberton, N. C., exceeded flood stage on December 30 and continued in flood until January 28. There were three crests; the first of 9.5 feet (flood stage 8 feet), occurred on the 6-7th; the second and third crests of 9.8 feet occurred on the 11th and 17th. A survey during the peak of the overflow indicated that low areas within the city were under 1 to 2 feet of water. A few low approach roads to recreational areas along the river were impassable.

Minor flooding occurred on the Ogeechee River in Georgia between the 13th and 21st. The Altamaha River at Charlotte, Ga., was out of its banks from the 9th to the 20th. It crested on the 13th, 2 feet above flood stage. The Satilla River at Waycross, Ga., was in minor flood from the 7th to the 12th. Farther downstream, at Atkinson, Ga., the stream overflowed from the 8th through the end of the month, cresting nearly 4 feet above flood stage on the 15th.

### EAST GULF OF MEXICO DRAINAGE

Heavy rains (2 to 5 inches) on the 1st to the 3d

caused minor flooding on the Flint River at Albany, Ga., from the 4th to the 6th. It crested on the 5th, nearly 1 foot above flood stage. The Apalachicola River at Blountstown, Fla., rose rapidly, exceeding flood stage on January 1, and remained out of its banks through the 22d. After cresting on the 6th, 6.2 feet above flood stage, it receded slowly due to the added inflow from the second period of heavy rains on the 8th to the 10th. The prolonged period of flooding at Blountstown retarded lumbering and other interests at least 2 weeks. Damages from the high water are estimated at \$117,500.

Minor flooding occurred on the Choctawhatchee River at Newton, Ala., and Caryville, Fla., between the 3d and 10th. This overflow was due to general rains on December 31 to January 2. Damage was negligible and the overflow was confined to woodlands and pasture land.

### MISSISSIPPI SYSTEM

Upper Mississippi Basin.--Excessive rainfall over southeastern Minnesota streams and the Kickapoo River in west-central Wisconsin produced bankfull stages in local areas. An ice jam on the Root River below Houston and Hokah, Minn., produced up to 1.5 feet of overflow on the 26-27th. Damage was negligible.

Precipitation over the Upper Mississippi Basin above Guttenberg, Iowa, averaged normal for January, except 1.5 to 3.0 inches above normal over east-central and southeastern Minnesota and northwest and west-central Wisconsin. At Minneapolis-St. Paul, Minn., a total snowfall of 35.3 inches was recorded during January. This was the greatest January snowfall on record since 1917, when 28.8 inches was recorded. This was the third greatest monthly snowfall since March 1951, when 40.0 inches was recorded.

A comparison of snow depths in the Upper Mississippi Basin on January 31, with that of other years is given in the following table:

### COMPARATIVE SNOW DEPTHS (INCHES)

STATION	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	1956
(Minnesota)												
Bemidji	24	22	12	11	2	13	4	8	8	5	11	26
International Falls	15	32	16	14	4	16	11	8	20	8	11	22
Duluth	27	17	18	9	6	15	9	16	11	11	14	29
Alexandria	17	9	5	2	2	9	0	5	0	5	2	16
New Ulm	3	5	T	T	4	2	T	1	2	3	T	6
Minneapolis	19	6	4	3	4	6	2	2	0	2	2	11
Rochester	2	5	3	0	6	3	T	2	3	2	1	10
(Wisconsin)												
Park Falls	24	18	15	5	10	19	2	14	12	12	13	21
Wausau	12	5	8	3	6	9	T	4	6	5	7	12
Portage	1	9	10	0	9	7	1	2	10	4	4	2

The Turkey River at Garber, Iowa, overflowed its banks by 5.1 feet on the 25th. The Pecatonica River at Martintown, Wis., exceeded flood stage on the 29th and 30th, cresting on the 29th, 3.6 feet above flood stage. This flooding was due to heavy rains and mild temperatures, which softened the ice and caused local ice jams. Damage was negligible. Only vacant farmland and pastures were flooded.

Heavy precipitation from the 24th to the 27th produced rapid rises on the Sangamon and Kaskaskia Rivers in Illinois to above flood stage. The Sangamon River at Riverton, Ill., continued in flood from January 29 through February 10, cresting on February 5, 4.9 feet above flood stage. Minor flooding occurred on the Kaskaskia River at Vandalia, Ill., on January 28 and 29. It continued rising down stream and exceeded flood stage at Carlyle

# GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS-Continued

JANUARY 1967

Dam, Ill., on January 31. It crested on February 8 nearly 4 feet above flood stage. The extent of flooding was limited to farmland adjacent to the rivers.

Missouri Basin--The Missouri River, below Gavins Point dam at Yankton, S. Dak., was generally open during January with floating ice. Temporary ice blockage developed briefly during subzero weather. Tributaries above Yankton were frozen throughout the month and stages were at low winter-time levels.

Ohio Basin--This was one of the driest Januarys of record in the middle Ohio Basin. At Columbus, Ohio, this was the third driest January of record.

Minor flooding occurred on the Cumberland River at Barbourville, Ky., on the 28th. No damage was reported.

White Basin--Heavy rains (2 to 3 inches) on December 27 and 28 caused the Cache River at Patterson, Ark., to exceed flood stage on December 29. It crested on January 4, nearly 2 feet above flood stage. It receded within its banks on January 16. Damages were light. Approximately 4,000 acres were inundated.

Great Basin--Local runoff on the 28th, due to heavy precipitation and snowmelt, caused minor flooding on the Truckee River at Reno, Nev.

Snowpack is heavy and wet with 10 to 12 feet on Mt. Rose and as high as 16 feet near Donner Summit. Snowfall at Reno during January (12.4 inches) was the heaviest since February 1959.

## PACIFIC SLOPE DRAINAGE

The overflow of the Sacramento River at all fixed-sill weirs was due to a series of storms during the latter part of the month, which deposited 150% to 300% of the monthly normal precipitation. No major damage occurred, but some marinas, built below the maximum capacity elevation line inside the levees, were flooded briefly with minor damage. Some marinas were put to the expense of re-launching docks that had been pulled up on the levees for safety during the high water and which were stranded upon recession.

Snow depth at Norden, Calif., 7,000 feet elevation, increased from 27 inches at the start of the storm to 149 inches at the end of the stormy period on February 1. At Blue Canyon, at the 5,200 feet level, snow increased from 3 inches to 26 inches during the same period. The cutting off of a portion of the heavier contributing area of the Sierra Basins by snow effectively reduced stages below those that could have resulted had the precipitation been all rainfall.

Heavy rains on the 20th and 21st caused minor floods in the lower Russian and Napa Rivers in California. Widespread lowland flooding resulted in sections of the San Francisco Bay region, particularly in Marin County and Redwood City, Calif. Water reached depths as much as 6 feet in low areas and on roads, particularly in sections of Marin County. On the San Francisco Peninsula, particularly Redwood City and San Mateo, numerous homes and basements were flooded in areas adjacent to creeks or where drainage systems were overtaxed. On hillsides of the Bay Area many landslides occurred with scores of homes either badly damaged or completely

destroyed by mud slides. The flooding along the Russian River on the 21st and 22d was confined to the area from Healdsburg downstream through the Guerneville resort area. The Russian River at Guerneville, Calif., crested 10.6 feet above flood stage on the 22d. Recurring rains during the remainder of the month kept the river at a high level and caused another rise to slightly above flood stage on the 29th. Preliminary estimates of flood damage, along the Russian and Napa Rivers, were placed at \$1.5 million by the Army Corps of Engineers.

Moderate to heavy rain during the last 10 days of January caused the Eel River at Fernbridge, Calif., to rise to bankfull stage on the 29th. Some minor flooding was reported in low places near the mouth of the river during high tide. A few head of cattle were moved from lower pastures to higher ground, but otherwise no damage resulted.

Three to 6 inches of rain on the 26th to the 29th caused 2 to 3 feet of overflow along the south and north Forks of the Coquille River at Myrtle Point, Oreg. Freezing levels were 8 to 9 thousand feet during the period of heavy rain. Low-level snowmelt contributed to the runoff. Damage was limited to bank erosion and pastures.

Local flash flooding occurred on the 20th-22d through the flat areas of the upper Snake River Valley from American Falls to Rigby, Idaho, and on the Little Wood River in the Richfield, Idaho, area. The most severe flooding was along Crow Creek and Willow Creek in the Idaho Falls area. Considerable local flooding occurred in the Blackfoot and Aberdeen areas. Flood damage was limited to flooded basements, washed out road and railroad fills, and weakened bridge approaches. Flooding developed on the Weiser River from Council to Weiser, Idaho, from the 27th to the 30th due to heavy rain on melting snow and ice. The rainfall ranged from 2 to over 3 inches. Some damage resulted to roads, fields, and a few basements in the lowlands.

Significant rises occurred on the 26th to the 30th in the Willamette Basin, and along coastal and north-central Oregon streams from heavy rainfall. Rainfall during this period ranged from 3 inches at valley locations to 6 inches in the Coast and Cascade Ranges. East of the Cascades, precipitation amounts varied from 1.5 to 2.5 inches. Freezing levels fluctuated from 7,000 to 5,000 feet over western Oregon to near 5,500 feet over eastern Oregon. All Coast Range Willamette tributaries exceeded flood stage by up to 3.5 feet in the Yamhill and Tualatin drainages. Johnson Creek in the Portland local area crested 0.4 foot above flood stage. The Willamette crested near bankfull at Harrisburg, Wilsonville, and Oregon City, Oreg., and generally 5 feet below flood stage along the remainder of the main stem. Preliminary estimates of flood damage were placed at \$534,000 by the Corps of Engineers.

Two minor floods occurred on the Chehalis River at Centralia, Wash., during the last decade of the month. These two rises were due to heavy rains and mild temperatures. Preliminary estimates of flood damage was placed at \$168,000 by the Corps of Engineers.

# FLOOD STAGE DATA

(All dates in January unless otherwise specified)

JANUARY 1967

River and station	Flood stage	Above flood stages -dates		Crest *		River and station	Flood stage	Above flood stages -dates		Crest *	
		From-	To-	Stage	Date			From-	To-	Stage	Date
<b>ATLANTIC SLOPE DRAINAGE</b>											
Lumber:	Lumberton, N. C.	8	Dec. 30	28	(9.5 (9.8	6-7 11,17					
Ogeechee:	Dover, Ga.	7	13	15	7.0	14					
	Eden, Ga.	9	10	21	9.7	17					
Altamaha:	Charlotte, Ga.	15	9	20	17.05	13					
Satilla:	Waycross, Ga.	16	7	12	16.75	9					
	Atkinson, Ga.	13	8	Feb.	1	16.75	15				
<b>EAST GULF OF MEXICO DRAINAGE</b>											
Flint:	Albany, Ga.	20	4	6	20.95	5					
Apalachicola:	Blountstown, Fla.	15	1	22	21.2	6					
Choctawhatchee:	Newton, Ala.	19	3	4	22.6	3					
	Caryville, Fla.	12	5	10	13.2	6					
<b>MISSISSIPPI SYSTEM</b>											
<u>Upper Mississippi Basin</u>											
Root:	Houston, Minn.	15	26	27	16.5	27					
	Hokah, Minn.	47	26	27	48.2	27					
Kickapoo:	Steuben, Wis.	8	25	30	8.7	29					
Turkey:	Garber, Iowa	17	25	25	22.1	25					
Pecatonica:	Martintown, Wis.	11	29	30	14.6	29					
Sangamon:	Riverton, Ill.	13	29	Feb.	10	17.9	Feb.	5			
Kaskaskia:	Vandalia, Ill.	18	28	29	18.2	29					
	Carlyle Dam, Ill.	423	31	Feb.	15	426.7	Feb.	8			
<u>Ohio Basin</u>											
Cumberland:	Barbourville, Ky.	27	28	28	27.2	28					
<u>White Basin</u>											
Cache:	Patterson, Ark.	7	Dec.	29			16	8.9	4		
<b>PACIFIC SLOPE DRAINAGE</b>											
Sacramento:	Moulton Weir, Calif.	76.8	22	23	78.3						
	Colusa Weir, Calif.	61.8	22	24	65.7						
		25	26	63.7							
		27	Feb.	10	67.1	Feb.	1				
Tisdale Weir, Calif.	45.5	22	Feb.	14	(48.3 (49.1	Feb.	23				
Fremont Weir, Calif.	33.5	22	Feb.	12	(35.7 (37.3		23				
Russian:	Guerneville, Calif.	29	(21 (29	22	39.6 29.3		22				
Eel:	Fernbridge, Calif.	17	29	29	17.0		29				
South Fork Coquille:	Myrtle Point, Oreg.	35	28	29	36.8		28				
North Fork Coquille:	Myrtle Point, Oreg.	28	27	31	30.8		28				
Weiser:	Weiser, Idaho	8	29	30	9.3		29				
Marys:	Philomath, Oreg.	20	28	29	20.4		28				
Luckiamute:	Suver, Oreg.	27	28	30	29.2		28				
South Yamhill:	Whiteson, Oreg.	38	28	31	41.6		28				
Pudding:	Aurora, Oreg.	20	29	Feb.	2	22.6		20			
Tualatin:	Farmington, Oreg.	29	29	Feb.	4	32.6		31			
Johnson Creek:	Sycamore, Oreg.	8	27	28	8.4		28				
Chenalis:	Centralia, Wash.	63	20	22	65.25		21				
		28	30	30	63.60		29				

\* Provisional















# SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun.

JANUARY 1967

Date	Sun's zenith distance								Date	Sun's zenith distance																											
	A.M.				*	P.M.					A.M.				*	P.M.																					
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°	60.0°	70.7°	75.7°	78.7°		60.0°	70.7°	75.7°	78.7°																			
ALBUQUERQUE, N. MEX.																																					
Air mass																																					
	4.19	3.35	2.51	1.67	*	1.67	2.51	3.35	4.19		4.69	3.75	2.81	1.88	*	1.88	2.81	3.75	4.69																		
Jan.																																					
1-----	1.04	1.14	1.27	1.43	1.44	1.46	1.29	1.16	1.06	3-----	---	---	---	---	---	---	---	---																			
2-----	1.05	1.17	1.30	----	----	----	----	----	----	15-----	---	M 0.92	M 1.07	---	S 1.23	---	S 1.15	S 1.09	M 0.86																		
3-----	1.09	1.19	1.28	----	----	----	----	----	----	17-----	S 0.95	S 1.06	S 1.18	----	S 1.29	---	S 1.19	S 1.05	S .94																		
5-----	1.07	----	----	----	----	----	----	----	----	28-----	----	----	----	----	M 1.26	---	----	----	----																		
7-----	1.15	1.27	1.42	1.45	1.40	1.27	1.12	.99	----	Aver-	ages	0.95	0.99	1.13	----	1.26	----	1.17	1.03	0.89																	
8-----	1.06	1.16	1.27	1.46	1.50	1.45	1.25	1.10	.97	MADISON, WIS.																											
9-----	1.10	1.21	1.31	1.46	1.48	1.44	1.23	1.16	1.02	Air mass																											
10-----	1.05	1.14	1.23	1.37	1.41	1.34	1.24	1.11	.99	TUCSON, ARIZ.																											
11-----	1.02	1.14	1.28	1.42	1.45	1.43	1.32	1.14	1.05	Air mass																											
12-----	1.08	1.18	1.30	1.43	----	----	----	----	----	Air mass																											
13-----	.98	1.08	1.21	1.32	1.37	----	----	----	----	Air mass																											
14-----	.97	1.08	1.22	----	----	----	----	----	----	Air mass																											
15-----	1.04	1.15	1.28	1.40	1.46	1.42	1.23	1.05	.99	Air mass																											
17-----	1.06	----	----	----	----	----	----	----	----	Air mass																											
18-----	1.08	1.19	1.30	----	----	1.46	1.32	1.22	1.13	Air mass																											
19-----	1.08	1.20	----	----	----	----	----	1.11	1.01	Air mass																											
20-----	.98	1.10	----	1.38	1.42	----	----	----	.98	Air mass																											
21-----	1.05	1.16	1.27	1.41	1.44	1.42	1.26	1.12	1.02	Air mass																											
Aver-	ages	1.05	1.16	1.27	1.41	1.44	1.42	1.26	1.12	Air mass																											
BLUE HILL OBS., MASS.																																					
	Air mass									Air mass																											
	4.89	3.92	2.94	1.96	*	1.96	2.94	3.92	4.89		4.56	3.65	2.74	1.83	*	1.83	2.74	3.65	4.56																		
Jan.																																					
2-----	0.67	0.77	0.89	----	----	----	0.99	0.87	0.74	2-----	0.97	1.07	1.18	1.31	----	----	----	----	----	----	----	----	----	----	----	----	----										
6-----	.95	1.05	1.18	----	1.30	----	1.20	1.05	.95	4-----	----	----	1.87	1.18	----	1.35	----	----	----	----	----	----	----	----	----	----	----										
16-----	.84	.94	1.10	----	1.28	----	1.13	1.01	.89	5-----	----	----	1.84	1.10	1.32	----	1.35	1.17	1.06	0.97	----	----	----	----	----	----	----	----									
18-----	.93	1.01	1.13	----	1.33	----	1.23	1.11	.99	6-----	----	----	1.46	1.28	1.67	1.09	1.17	1.03	.90	.78	----	----	----	----	----	----	----	----									
20-----	.77	.89	1.04	----	1.18	----	----	----	----	7-----	----	----	1.59	.70	1.87	1.20	1.17	1.03	.90	.78	----	----	----	----	----	----	----	----									
21-----	.79	.90	1.01	----	1.23	----	1.11	.98	.87	8-----	----	----	1.42	.49	.69	1.01	1.15	1.14	1.03	.91	.79	----	----	----	----	----	----	----	----								
30-----	.88	.98	----	1.30	1.30	1.29	1.13	1.05	.93	9-----	----	----	1.55	.69	1.02	1.24	1.20	1.00	.88	.77	----	----	----	----	----	----	----	----									
31-----	.94	1.04	1.16	1.32	1.33	1.33	1.13	----	----	10-----	1.05	1.11	1.16	----	----	1.26	1.11	1.11	1.07	.97	----	----	----	----	----	----	----	----									
Aver-	ages	0.85	0.95	1.07	1.31	1.28	1.31	1.13	1.01	0.90	21-----	1.93	1.02	1.13	1.26	----	1.26	1.11	.95	.89	----	----	----	----	----	----	----	----									
OMAHA, NEBR.																			Air mass																		
	Air mass										3.36	2.69	2.01	1.34	*	1.34	2.01	2.69	3.36																		
	4.78	3.82	2.87	1.91	*	1.91	2.87	3.82	4.78		Jan.	25-----	1.22	1.30	1.39	1.49	1.61	----	----	1.20	1.13	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
											26-----	1.15	1.24	1.35	1.47	1.58	1.47	1.34	1.23	1.13	1.13	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	
											27-----	1.17	1.25	1.35	1.47	1.58	1.47	1.34	1.23	1.13	1.13	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	
											28-----	1.15	1.23	1.33	1.46	1.47	1.47	1.34	1.23	1.13	1.13	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	
											Aver-	1.17	1.26	1.36	1.47	1.56	1.47	1.34	1.22	1.13	1.13	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	
											S	Slight haze - indeterminable										HS	Slight haze														
											M	Moderate haze - indeterminable										HM	Moderate haze														
											*	Values corresponding to true solar noon																									

Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station listed above appears

in the February 1967 issue, Vol. 8, No. 2, page 63, of this publication.

## SOLAR RADIATION DATA

Daily totals and monthly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

Note. --Langley is the unit used to denote one gram calorie per square centimeter. + Sun below horizon January 1 through 23.  
Values with an asterisk are interpolated.

**U** Indicates Urban sites.

# SOLAR RADIATION DATA

Daily totals and monthly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

Station	Day of month																																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.	
PAGE ARIZONA	---	280	230	259	193	261	255	253	253	249	251	138	185	259	245	256	266	249	269	208	190	157	166	115	---	278	279	240	270	265	203	232	
PHOENIX ARIZONA	278	274	273	276	168	297	274	304	295	291	290	166	280	286	286	287	302	292	293	331	320	196	185	250	330	335	362	370	339	364	304	287	
PORTLAND MAINE	64	199	64	30	143	226	146	38	170	--	174	160	138	62	173	208	76	--	164	205	204	168	59	79	26	174	42	67	95	262	275	134	
PROSSER WASHINGTON	--	--	122	79	175	166	--	--	65	58	80	31	167	29	198	192	150	97	41	67	77	186	135	109	42	70	32	145	--	191	237	113	
RAPID CITY S.DAK.	94	172	132	209	92	128	240	153	243	191	133	175	199	245	81	226	224	253	224	114	192	188	80	212	123	279	272	188	202	126	91	177	
RENO NEVADA	221	249	173	107	155	219	212	224	218	93	60	211	203	229	232	248	251	146	225	11	--	--	--	--	--	--	--	--	--	--	--	--	
RICHLAND 25 NW WASH.	118	52	136	71	160	144	91	101	64	52	74	40	160	39	159	131	147	80	83	101	90	165	163	133	71	49	72	170	206	192	220	114	
RIVERSIDE CALIFORNIA	269	283	293	242	202	296	141	300	302	299	270	287	285	244	237	192	312	161	147	149	109	7	171	14	294	325	336	295	289	53	243	227	
RUSTON LOUISIANA	--	--	--	--	107	97	232	102	149	288	265	42	76	249	295	29	56	285	--	151	90	98	162	136	109	102	332	315	301	185	132	169	
SAINT CLOUD MINN.	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	245*	223	119	76	121	--
SALT LAKE CITY	98	165	140	159	69	157	172	177	268	237	155	136	161	200	226	148	251	283	269	57	65	31	101	114	117	175	269	253	154	202	--	167	
SAN ANTONIO TEXAS	288	362	369	371	362	217	105	87	139	225	--	302	122	329	381	379	375	153	384	114	197	119	95	147	91	389	410	420	417	325	301	266	
SANTA MARIA CALIF.	260	229	258	255	178	274	267	271	260	--	251	260	259	266	276	274	273	273	232	213	80	172	270	140	304	306	280	201	103	51	264	233	
SAULT STE MARIE MICH	76	118	83	142	92	114	55	195	62	72	95	71	59	95	199	78	155	242	204	87	109	81	75	125	82	146	73	210	256	279	43	122	
SEATTLE TACOMA WASH.	103	18	69	15	100	57	52	43	57	24	53	37	--	19	155*	122*	52	38	10	70	97	92	40	153*	38*	37	24	80	56	--	190	66*	
STATE COLLEGE PENN.	89	139	279	175	216	218	43	90	194	194	156	165	109	70	109	246	159	254	118	250	145	151	94	155	173	58	24	116	180	315	123	155	
SPokane Washington	82	74	127	22	58	149	44	75	90	35	97	55	70	57	142	184	113	62	14	151	53	208	159	157	37	66	60	120	106	218	220	100	
STERLING VIRGINIA	65	257	243	96	200	243	122	23	200	201	223	221	190	56	77	282	252	289	172	321	239	244	260	259	263	39	178	326	338	251	206		
STILLWATER OKLAHOMA	291	245	280	276	218	208	282	291	201	291	292	288	240	263	301	272	287	230	309	293	269	298	268	296	155	165	333	321	282	314	179	266	
SWAN ISLAND W.I.	449	452	448	258	82	332	447	429	419	396	442	453	416	372	313	297	306	434	477	475	--	505	504	480	409	409	79	355	191	277	396	398	376
TAMPA FLORIDA	229	249	--	--	--	--	--	--	341	262	343	--	--	--	--	--	369	356	281	372	227	265	343	340	350	351	251	453	452	445	420	--	
TUCSON ARIZONA	332	327	280	332	272	323	318	338	340	336	338	142	335	332	337	343	319	333	343	348	341	235	139	228	275	350	369	314	373	358	313		
WAKE ISLAND PACIFIC	222	235	350	340	320	282	276	210	309	288	326	354	362	370	370	358	336	312	327*	354	252	383	238	177	366	399	269	279	371	381	360	315	

Note.--Langley is the unit used to denote one gram calorie per square centimeter.

Values with an asterisk are interpolated.

# NET RADIATION

Net radiation in langleys per day (8 a.m. to 8 a.m.) at Palmer, Alaska

JANUARY 1967

Date . . . .	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langley . . . .	-16	-38	-51	1	23	52	55	37	5	50	81	74	74	85	47	52	76	48	101	97	89	90	81	83	67	87	133	147	120	135	126	65

The measurement is made with a Beckman and Whitley net exchange radiometer over a plot of sod. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

NOTE: Observations temporarily discontinued at Huntley, Mont., for instrument recalibration.

These data are of an experimental nature and are published as received from the Palmer Exp. Station. The instrument with which they were measured has not been checked by the Weather Bureau.

# TOTAL OZONE DATA

These provisional ozone data are obtained from measurements made with a Dobson ozone spectrophotometer, and are applicable approximately to local apparent noon. The data are presented in the code  $\lambda s g \alpha \alpha$  defined in the August 1962 WMO circular entitled "PUBLICATION OF DATA FOR METEOROLOGICAL RESEARCH, WORLD OZONE DATA."

Units: Milli-atmo-cms.

Station	Day of month																															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Mean O <sub>3</sub>
Bismarck, N. D.	36372	20444	34347	36354	36359	36399	20414	34379	00419	20354	35319	34336	-----	20394	33371	35385	-----	35371	36358	34388	00352	36349	34356	36425	35443	35470	00361	35389	00363	34320	35382	378
Caribou, Maine	-----	02433	35361	-----	35348	00383	34381	35373	32376	-----	33487	34340	34369	35345	35421	36388	-----	02411	33378	32465	-----	35413	-----	-----	35366	35390	-----	-----	36427	00418	393	
Green Bay, Wis.	00378	34383	36450	34393	00411	-----	00376	00409	00463	34335	00306	00336	00422	00442	-----	00396	00382	00379	04363	00360	07341	02336	05377	00354	04375	04433	00408	04409	00335	06382	384	
Tallahassee, Fla.	05261	05271	05275	00276	00273	00289	03295	05295	05305	-----	00253	02308	04308	05322	05359	06316	06300	00297	00291	00298	00294	00277	00281	00275	00271	00268	00266	00309	00299	00317	00298	292
Albuquerque, N. Mex.	-----	00315	00315	00307	00279	00325	00381	00382	00283	00294	00267	00274	00293	00300	00293	00279	00313	00323	00300	00318	00279	05271	05293	05311	05361	00302	00283	05272	05283	00281	05285	302
Mauna Loa, Hawaii	-----	00263	00242	00260	00297	00290	00252	-----	00259	00299	00335	-----	00274	06257	-----	05301	00298	00290	00272	00265	00269	-----	00281	00254	00258	00263	00261	00256	-----	00257	04253	271
Sterling, Virginia	05356	00339	-----	05313	00368	00323	04318	05342	00338	00307	00377	00302	00312	05302	05307	00310	00301	00325	00337	00324	00324	00311	00299	00298	00306	00315	05356	00398	00415	00384	04342	332
Nashville, Tenn.	04335	00317	00288	00330	00322	04299	00322	00337	00336	00320	00352	00310	04305	00307	00356	00312	05332	00317	05358	00322	04336	05318	00292	-----	00284	00311	-----	00380	00335	00335	05314	324
Huancayo, Peru	00259	-----	00283	00258	02255	00265	03258	00262	06260	00263	00262	00260	00254	00254	-----	00256	00264	00260	00272	00264	00264	00265	00261	00260	00262	05265	00278	-----	00262	03265	00269	262
Bedford, Mass.	-----	35318	-----	00330	00387	-----	00355	35327	-----	00312	00314	-----	00343	00304	00325	00337	00349	-----	00296	00292	05317	00316	35331	-----	-----	00410	00343	332				

The spectrophotometer measures the total amount of ozone in the atmosphere, i.e., the amount contained in a vertical column of air extending from ground level to the top of the atmosphere in the vicinity of the station. The amount of ozone in this column (coded  $\alpha \alpha \alpha$ ) is expressed in terms of a thickness of a layer it would occupy at standard temper-

ature and pressure, e.g., 350 milli-atmo-cm ozone implies an ozone layer 0.350 centimeter thick. The code  $\lambda s$  designates the type of measurement made.

# DESCRIPTION of CHARTS

CHART I., A. NORMAL DAILY AVERAGE TEMPERATURE ( $^{\circ}$ F. 1931-60) FOR MONTH. B. TEMPERATURE DEPARTURE FROM 30-YEAR MEAN ( $^{\circ}$ F. 1931-60) FOR MONTH. Chart I-A is reproduced from Environmental Data Service Publication "Climatic Maps of the United States". Chart I-B is a reproduction of monthly chart appearing in "Weekly Weather and Crop Bulletin", a publication of Environmental Data Service.

CHART II. TOTAL PRECIPITATION. -CHART II is a reproduction of monthly chart appearing in "Weekly Weather and Crop Bulletin".

CHART III. PERCENTAGE OF NORMAL PRECIPITATION. -Chart III is a reproduction of monthly chart appearing in "Weekly Weather and Crop Bulletin".

CHART IV. TOTAL SNOWFALL. CHART V. A. PERCENTAGE OF MEAN MONTHLY SNOWFALL. B. DEPTH OF SNOW ON GROUND. -Chart IV gives the total depth in inches of unmelted snowfall as reported during the month by Weather Bureau and cooperative stations. This is converted in Chart V-A into a percentage of the mean monthly total amount computed for each Weather Bureau station having at least 10 years of record. The depth of snow on ground is that reported by both Weather Bureau and cooperative stations as of 7:00 a. m. Eastern Standard Time on the Monday nearest the end of the month. This is reported only for the months December through March. The snowfall charts are presented each month November through April.

Isolines for Charts I, II, III, IV, and V, are drawn through points of approximately equal value. Caution should be used in interpolating on these charts, particularly in mountainous areas.

CHART VI. A. PERCENTAGE OF POSSIBLE SUNSHINE. B. PERCENTAGE OF MEAN MONTHLY SUNSHINE. -CHART VI-A shows the amount of sunshine received in terms of percentage of the total hours of sunshine possible during the month. In Chart VI-B this is shown as a percentage of the mean number of hours of sunshine received. Means are computed for Weather Bureau stations having at least 10 years of record.

CHART VII. A. AVERAGE DAILY VALUES OF SOLAR RADIATION, LANGLEYS. B. PERCENTAGE OF MEAN DAILY SOLAR RADIATION. -Shown on Chart VII-A are the monthly averages of daily total solar radiation, both direct and diffuse, in langleys (gm. cal. cm.<sup>-2</sup>) for all Weather Bureau stations which record this element.

CHART VII-B shows the percentages of the mean based on at least 5 years of record during the period 1950-1960, and corrected to the International Pyrheliometer Scale of 1956.

CHART VIII. -TRACKS OF CENTERS OF ANTICYCLONES AT SEA LEVEL.

CHART IX. TRACKS OF CENTERS OF CYCLONES AT SEA LEVEL. -Centers which can be identified for 24 hours or more are tracked in these charts. Semi-permanent features such as the Great Basin and Pacific Highs and Colorado and Mexico Lows are not shown. The 7:00 a. m. EST positions are shown by open circles, with the intermediate positions at 6-hour intervals shown by solid dots. The date is given above the circle and the central pressure to whole millibars below. A dashed track indicates a regeneration rather than actual movement to the next position. Solid squares indicate position of stationary center for period shown beside it.

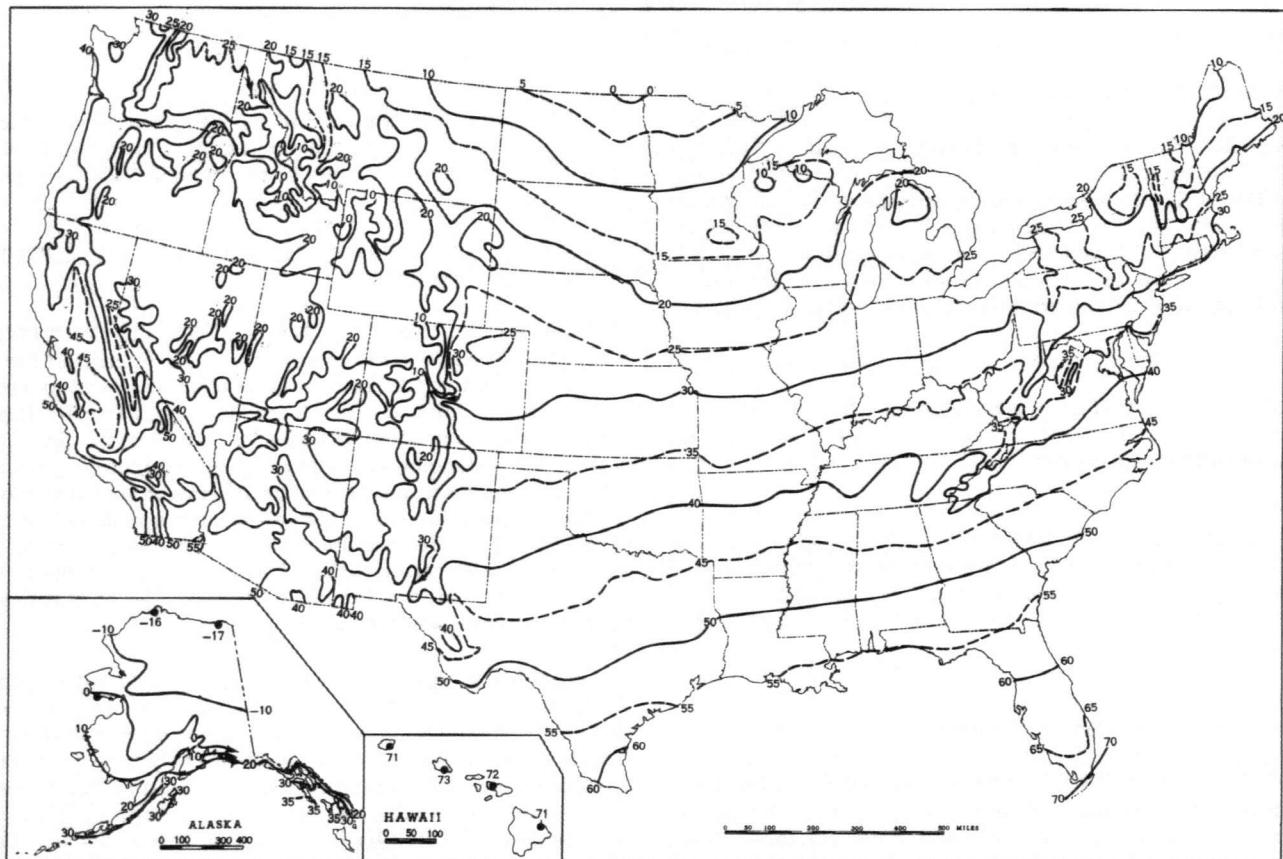
CHART X. AVERAGE SEA LEVEL PRESSURE (mb.) AND RESULTANT SURFACE WIND. -The average monthly sea level pressures are obtained from the eight daily 3-hourly observations reported at Weather Bureau Stations. Resultant surface wind directions (to 36 points of the compass) for the month are shown by arrows. Resultant speeds are indicated by the length of arrow shafts. Constancy ratios (resultant surface wind divided by average surface wind for month) are shown to two decimal places. The inset shows the departure of the average pressure based on 30-year normals for first-order Weather Bureau Stations, other stations having at least 10 years of record; and for each 10° intersection in a diamond grid over the oceans.

CHARTS XI-XVI. AVERAGE HEIGHT, TEMPERATURE, AND RESULTANT WINDS, 850, 700, 500, 300, 200, and 100 mb. -Height is given in geopotential meters and temperature in degrees Celsius. These are the averages of the 1200 GMT radiosonde reports. Wind speeds are given in meters per second; flag represents 25 m.p.s., full feather 5 m.p.s., and half feather 2 1/2 m.p.s. Directions are shown to 360° of the compass. Winds are based on rawins at the indicated pressure surface and at 1200 GMT.

CHART XVII. A. 50-MB. RESULTANT WINDS. B. 30-MB. RESULTANT WINDS. -Wind speed (isotachs) in knots. Arrows show resultant wind direction. Winds are based on rawins at the indicated pressure surface and at 1200 GMT.

Exact values of most of these charted elements for Weather Bureau stations are printed each month in tabular form in CLIMATOLOGICAL DATA, NATIONAL SUMMARY. Extreme values of temperature and precipitation for each state are included in the tables, Condensed Climatological Summary. Annual averages for surface elements are presented in the CDNS Annual Issue each year.

Chart 1. A. Normal Daily Average Temperature (°F. 1931-60), January



B. Temperature Departure from 30 - Year Mean (°F 1931-60), January 1967.

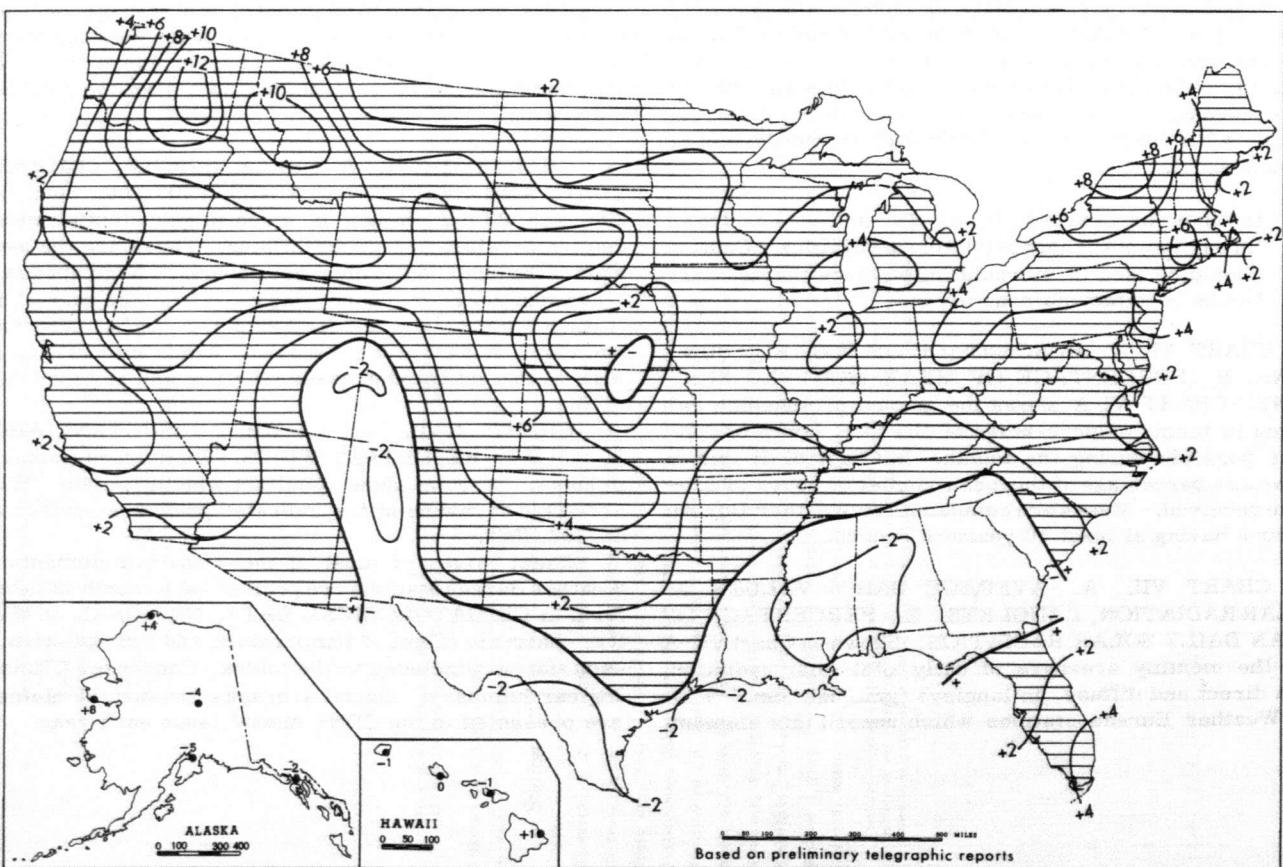


Chart II. Total Precipitation (Inches), January 1967.

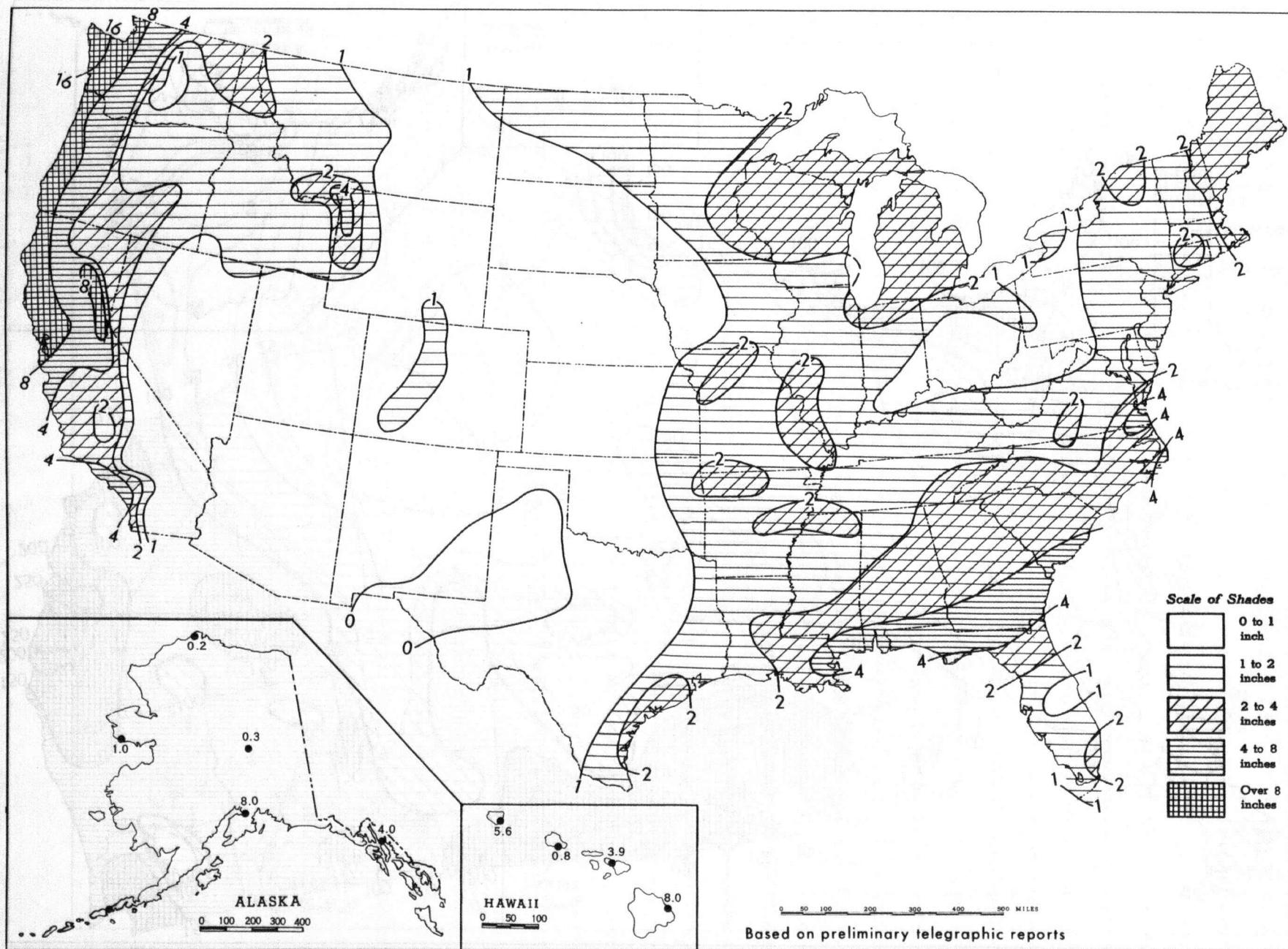


Chart III. Percentage of Normal Precipitation, January 1967.

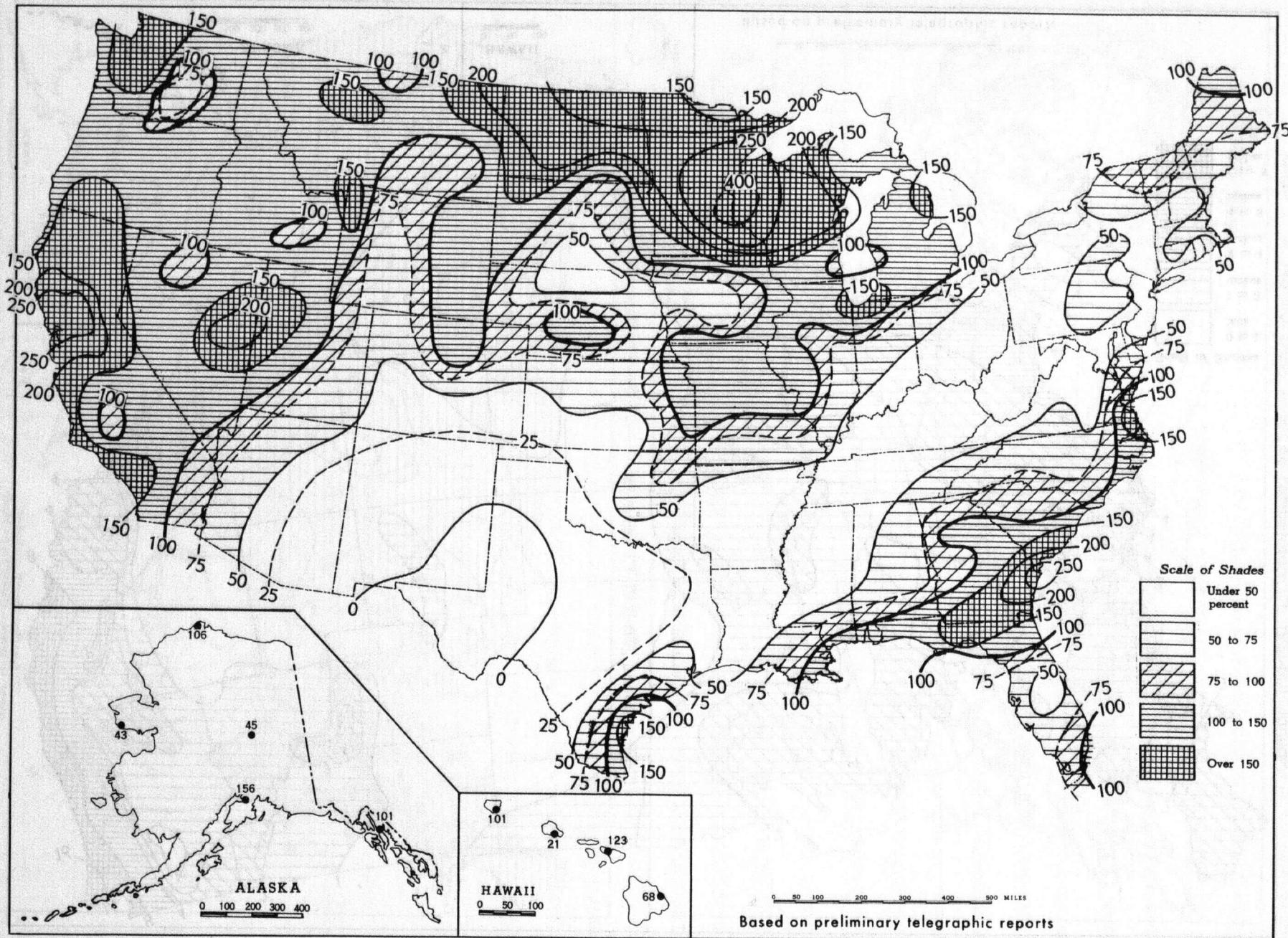
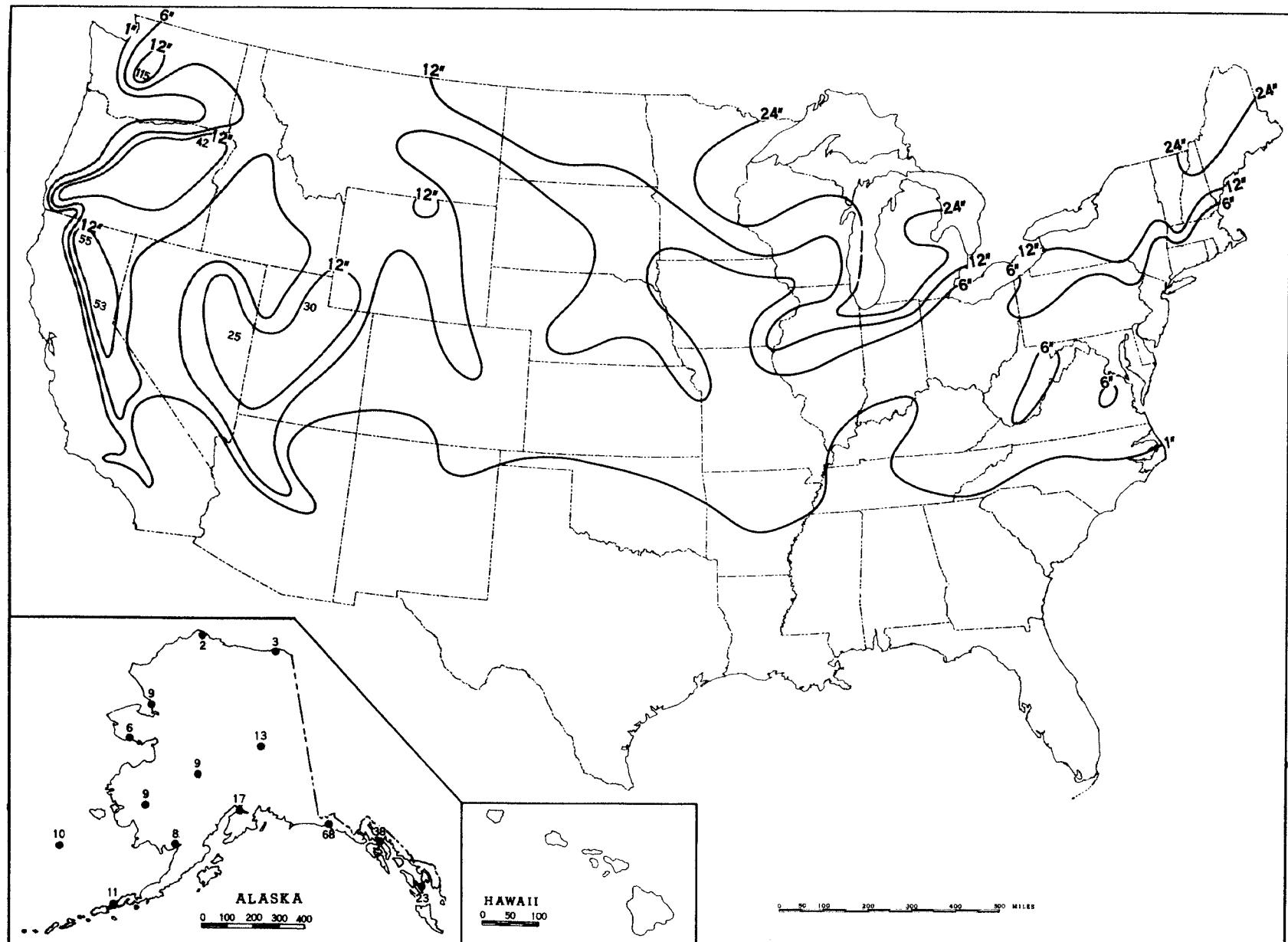
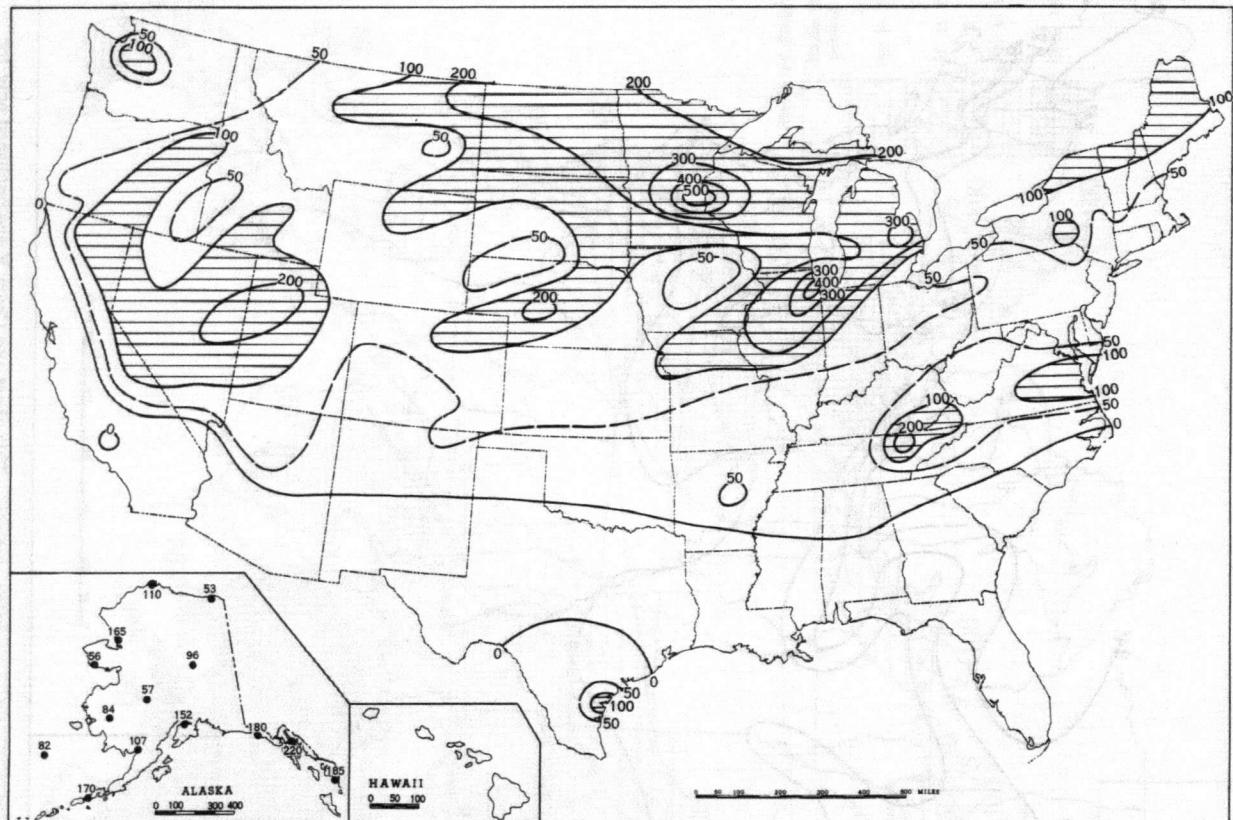


Chart IV. Total Snowfall (Inches), January 1967.

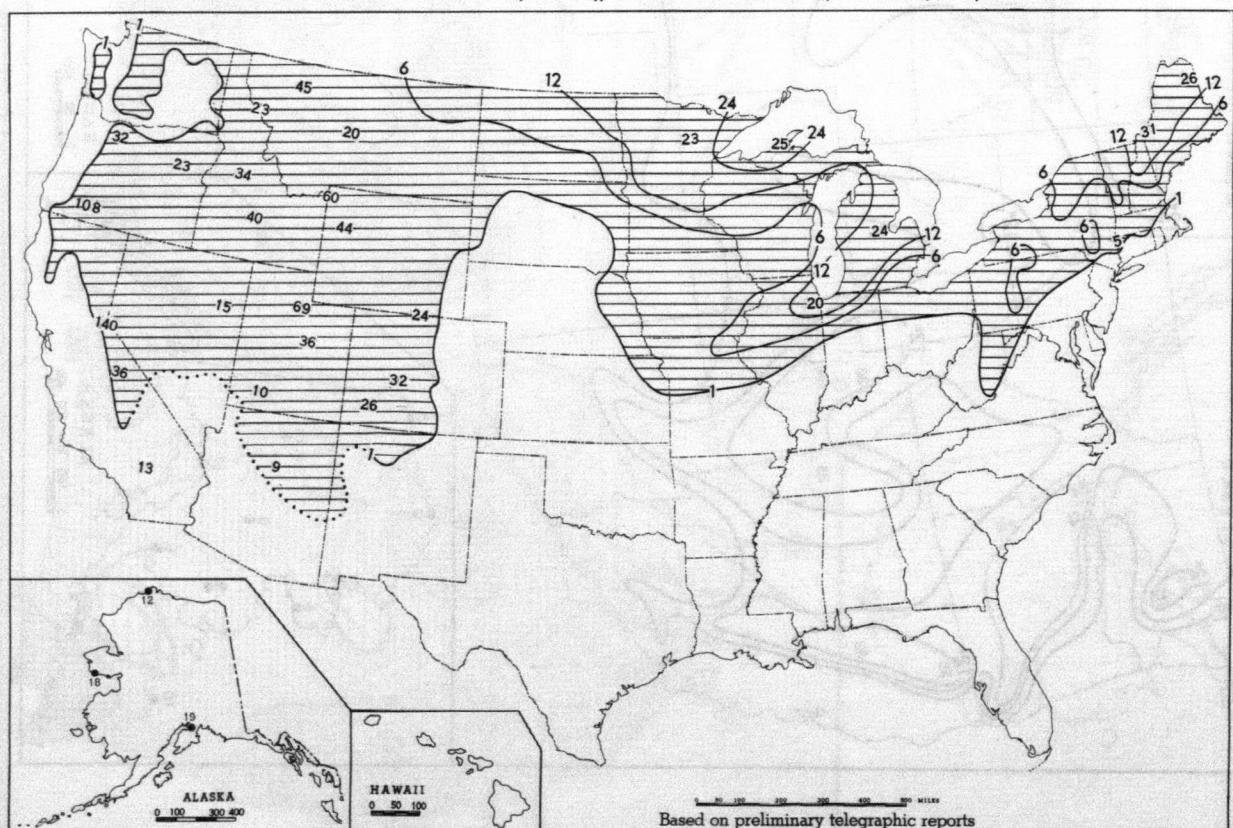


This is the total of unmelted snowfall recorded during the month at Weather Bureau and cooperative stations. This chart and Chart V are published only for the months of November through April although of course there is some snow at higher elevations, particularly in the far West, earlier and later in the year.

Chart V. A. Percentage of Mean Monthly Snowfall, January 1967.



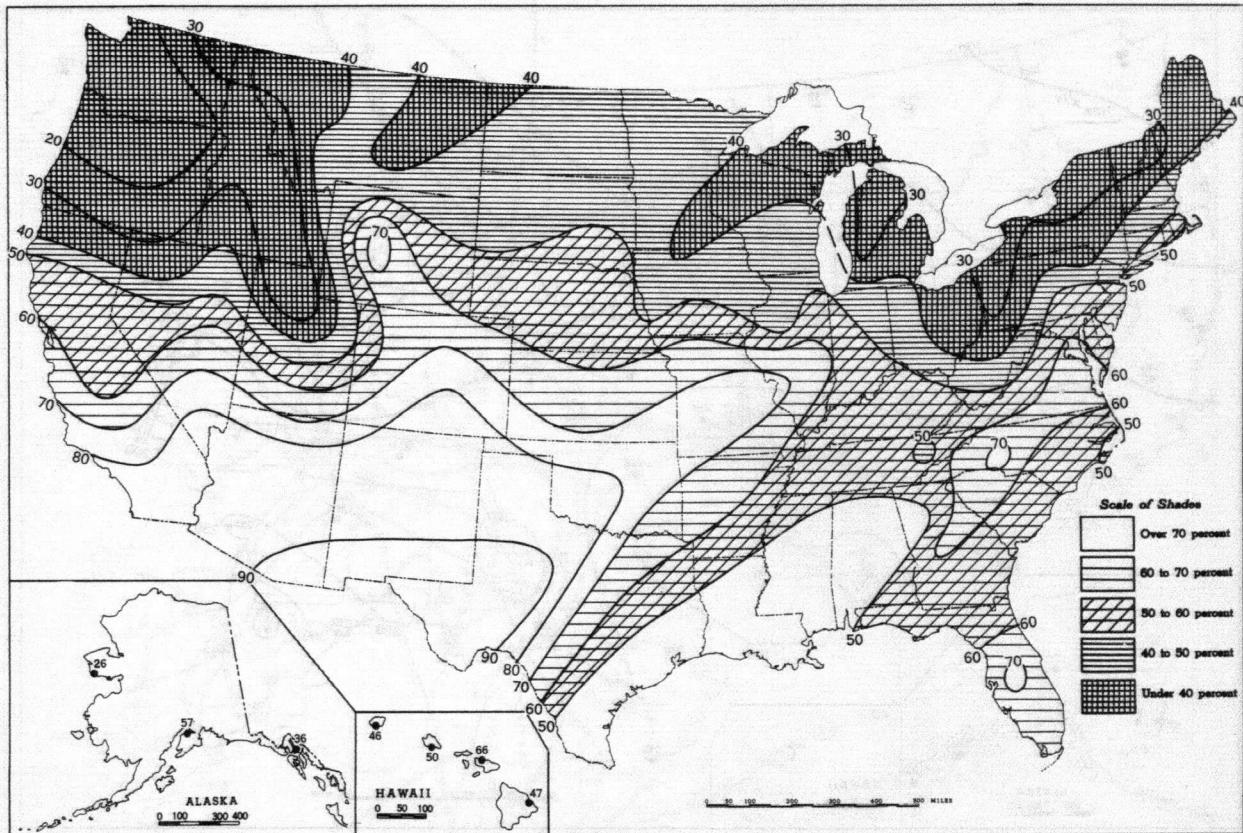
B. Depth of Snow on Ground (Inches), 7:00 a. m. E. S. T., January 30, 1967.



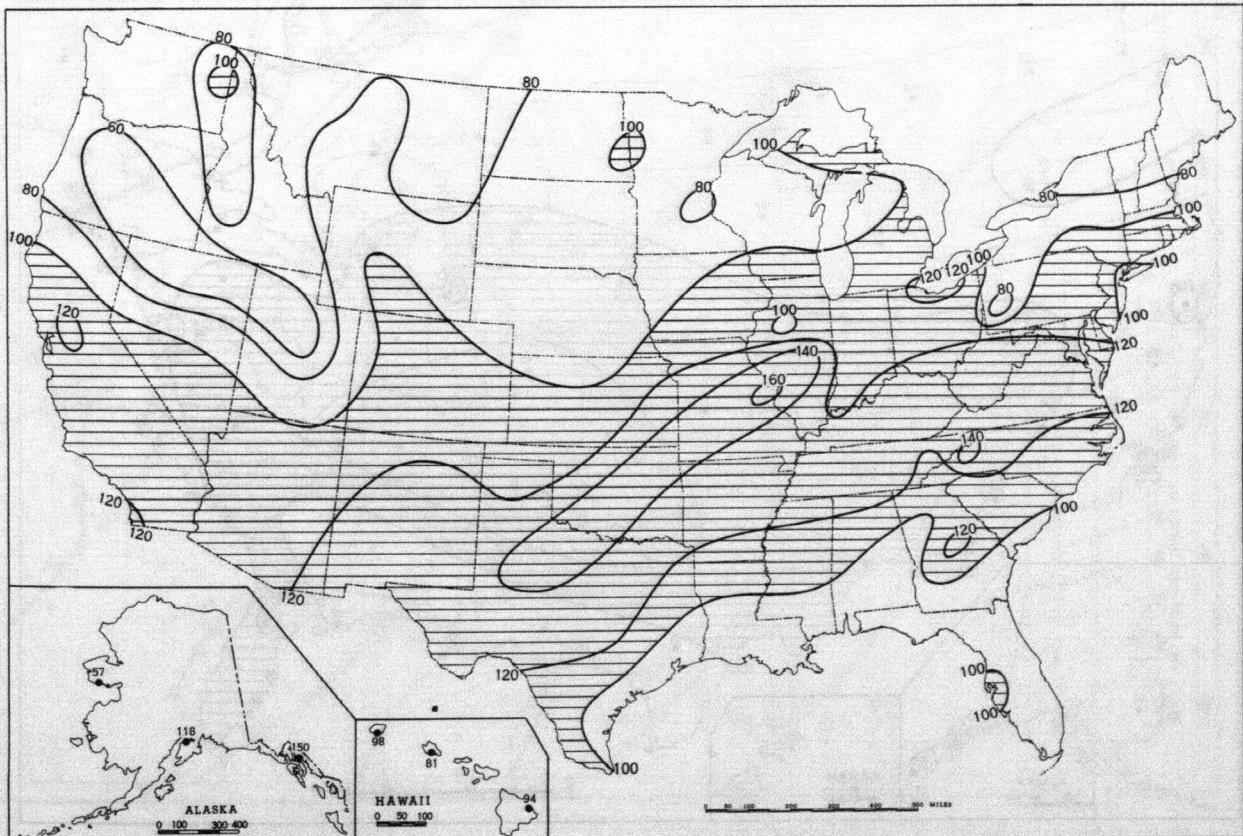
Based on preliminary telegraphic reports

- A. Amount of mean monthly snowfall is computed for Weather Bureau stations having at least 10 years of record.  
 B. Shows depth currently on ground at 7:00 a. m. E.S.T., of the Monday nearest the end of the month.  
 It is based on reports from Weather Bureau and cooperative stations.

Chart VI. A. Percentage of Possible Sunshine, January 1967.

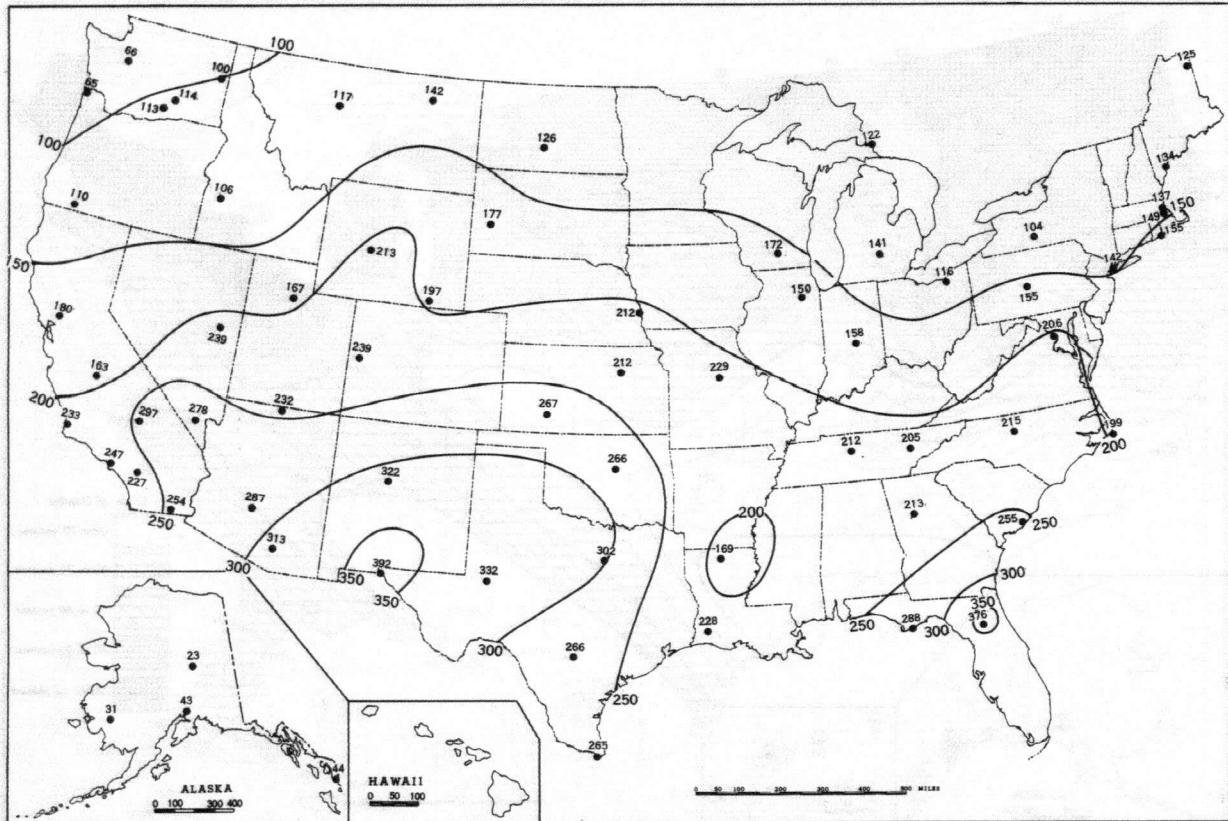


B. Percentage of Mean Monthly Sunshine, January 1967.

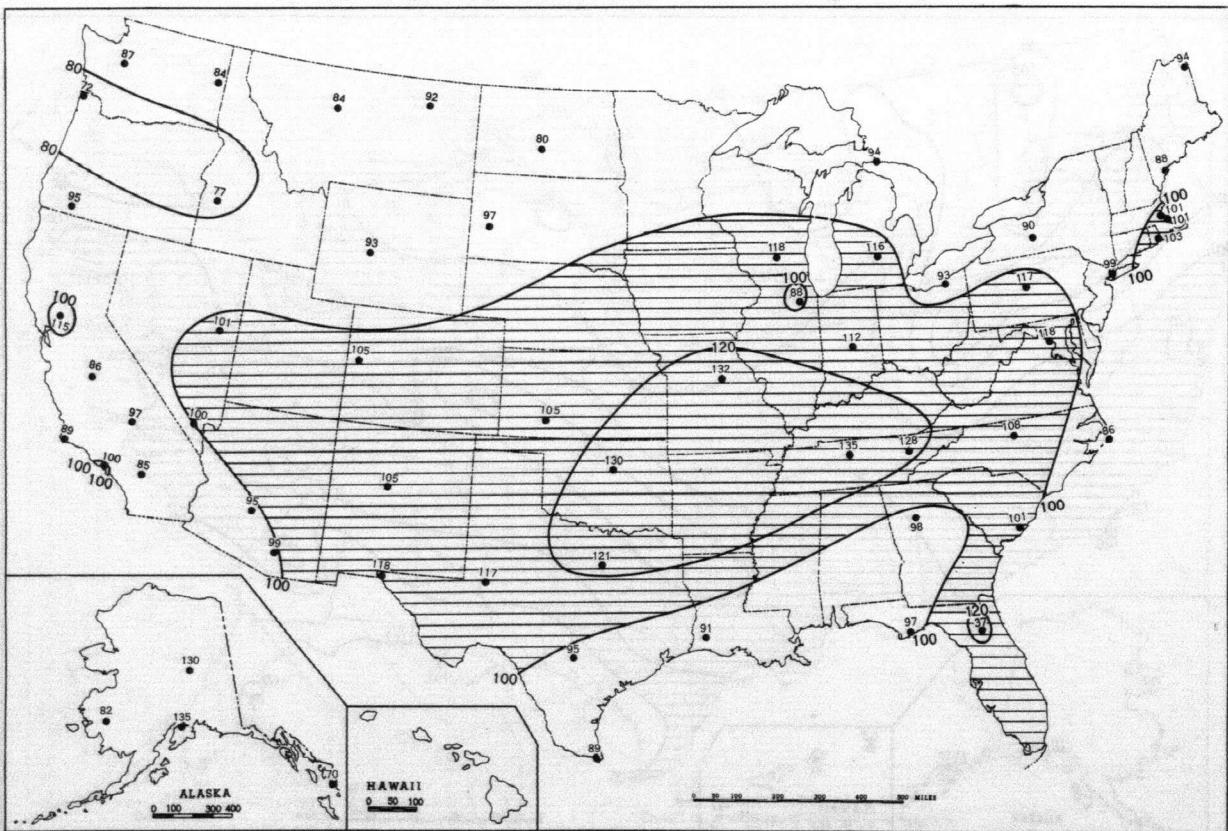


A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Means are computed for stations having at least 10 years of record.

Chart VII. A. Average Daily Values of Solar Radiation, Langleys, January 1967.

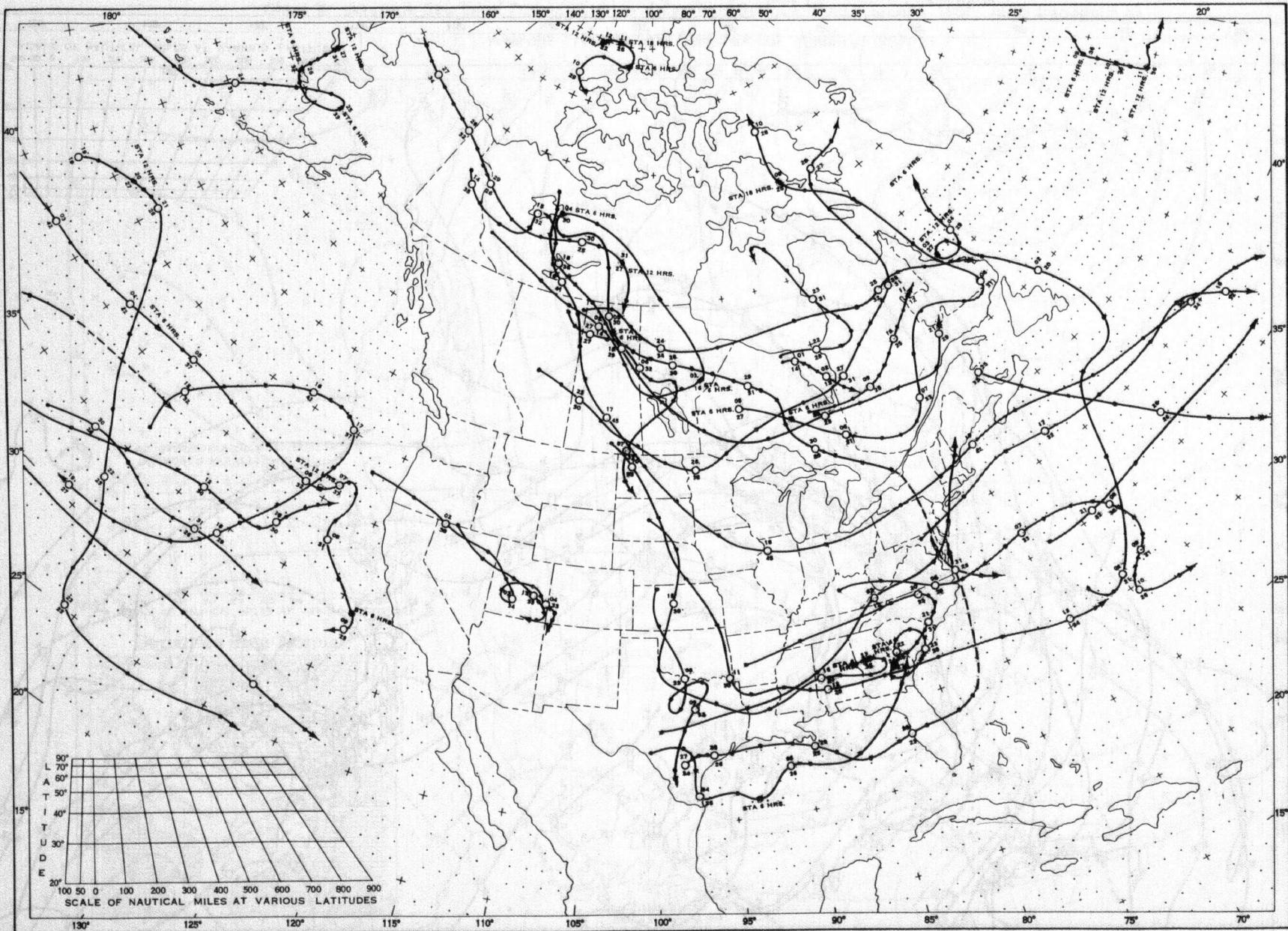


B. Percentage of Mean Daily Solar Radiation, January 1967.



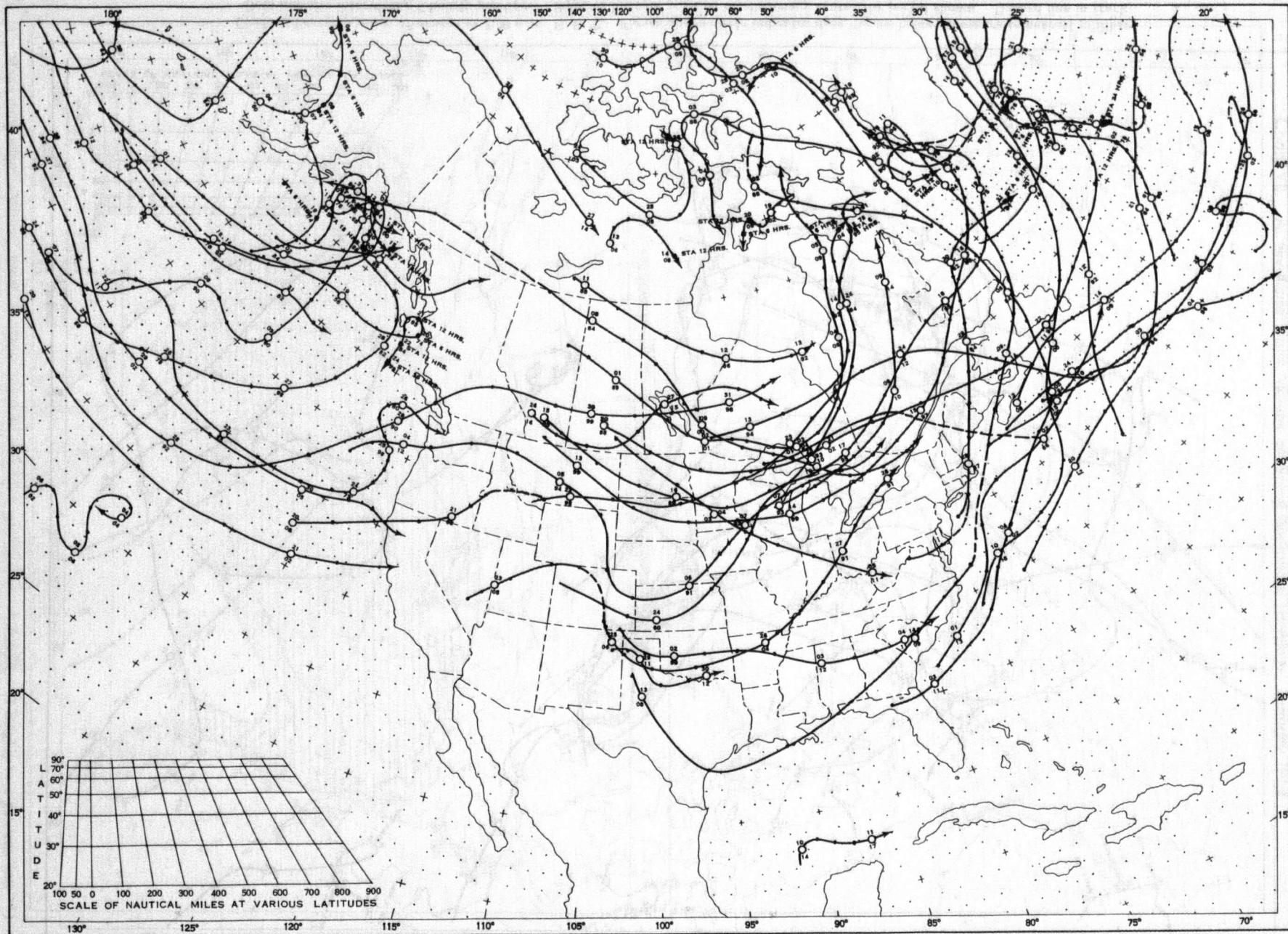
A. Mean daily solar radiation, direct + diffuse, received on a horizontal surface in langleys (1 langley = 1 gm. cal. cm.<sup>-2</sup>) and recorded in International Pyrheliometer Scale of 1956. B. Percentage of the mean based on at least 5 years of record during the period 1950-60, and corrected to the International Pyrheliometer Scale of 1956.

Chart VIII. Tracks of Centers of Anticyclones at Sea Level, January 1967.



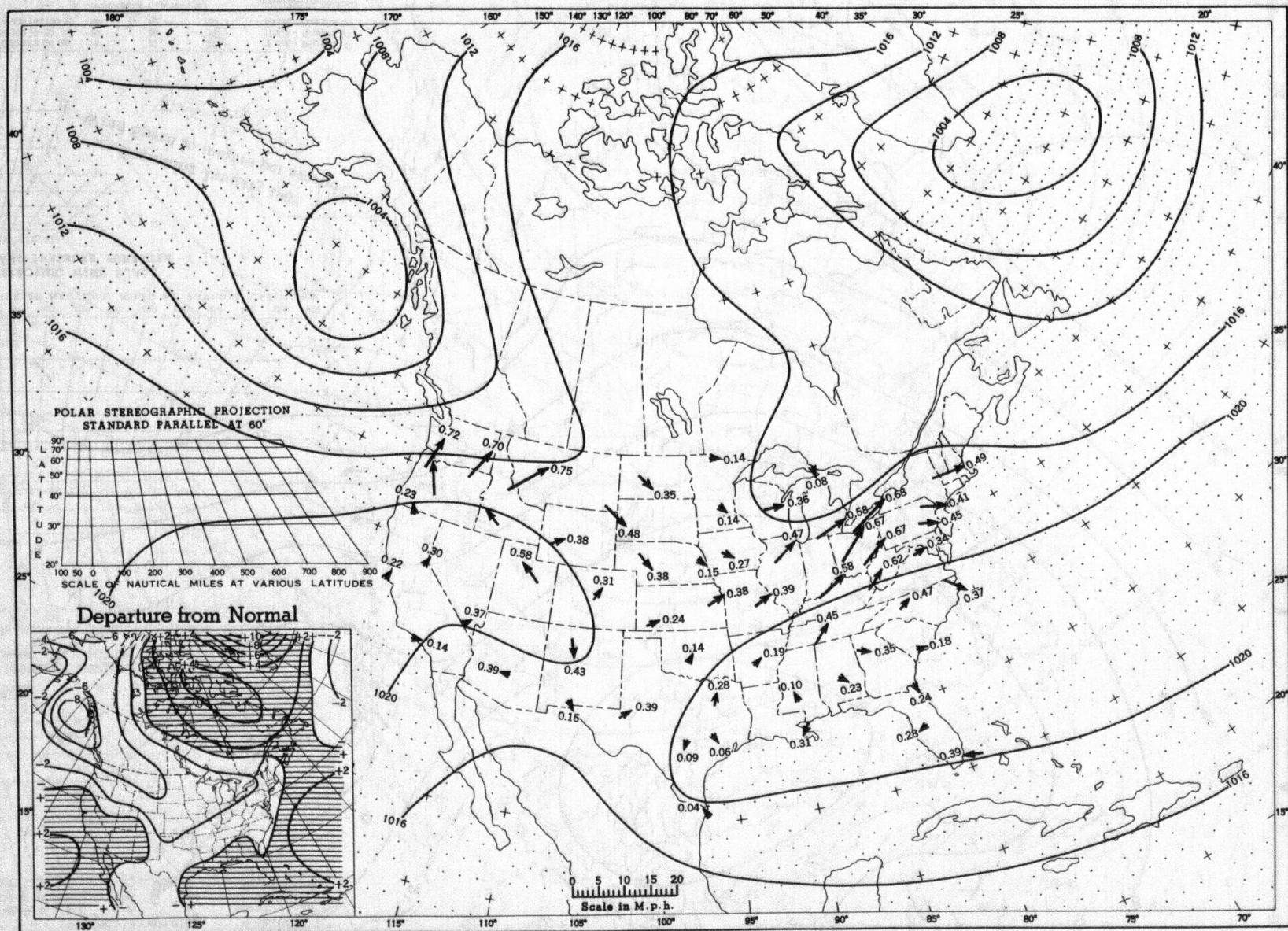
Circle indicates position of center at 7:00 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

Chart IX. Tracks of Centers of Cyclones at Sea Level, January 1967.



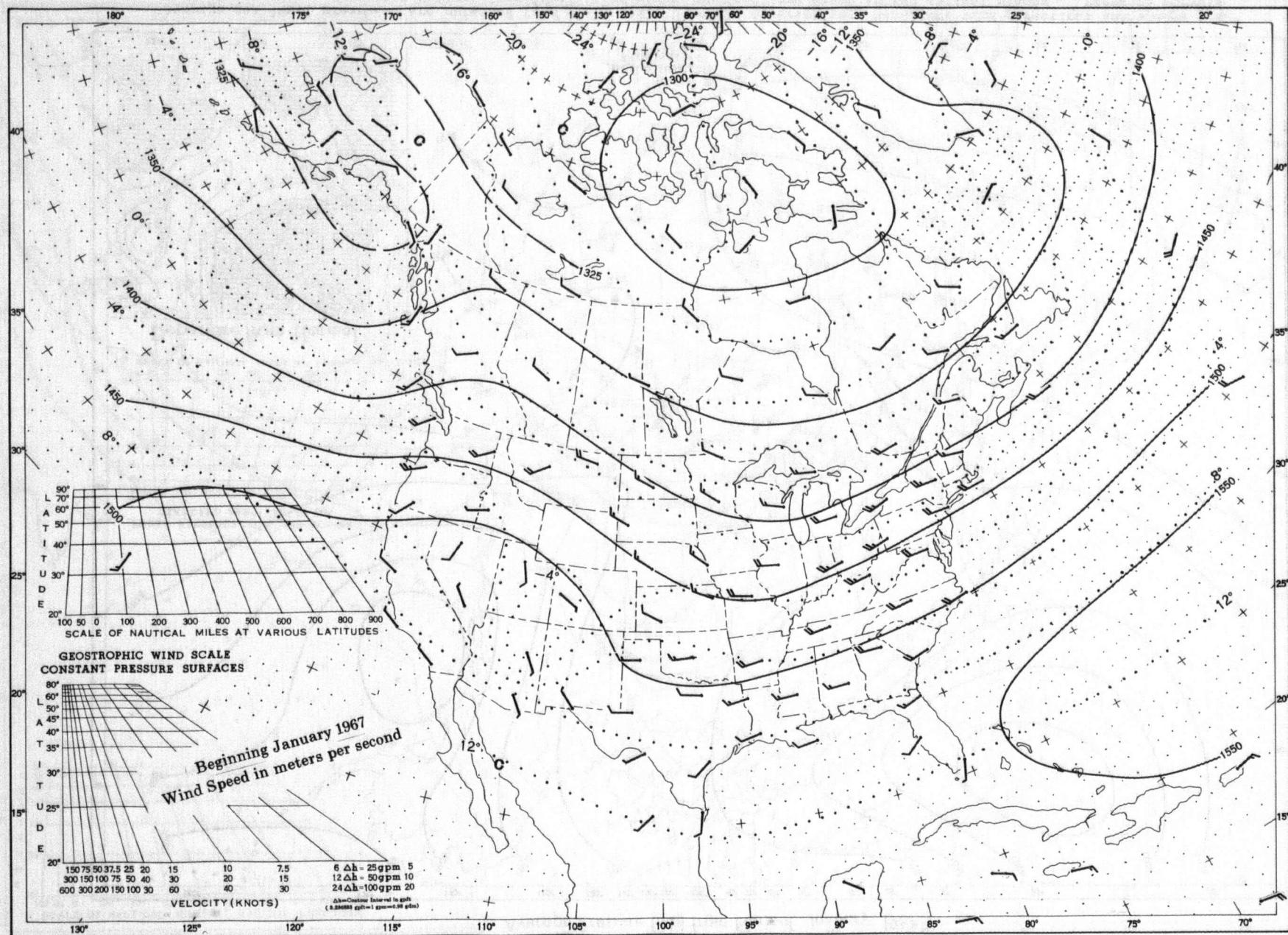
Circle indicates position of center at 7:00 a. m. E. S. T. See Chart VIII for explanation of symbols.

Chart X. Average Sea Level Pressure (mb) and Resultant Surface Wind, January 1967. Inset: Departure of Average Pressure (mb) from Normal, January 1967.



Average sea level pressures are obtained from eight daily 3-hourly observations. Resultant wind directions and speeds are shown by arrows. Constancy ratios (resultant speed ÷ average speed) are shown to two decimal places. Pressure normals are computed for stations having at least 10 years of record and for 10° intersections in a diamond grid over the oceans.

Chart XI. 850-mb. Surface, 1200 GMT, January 1967. Average Height and Temperature, and Resultant Winds.



Height in geopotential meters (1 g.p.m. = 0.98 dynamic meters). Temperature in °C. Wind speed in meters per second; flag represents 25 mps, full feather 5 mps, and half feather 2.5 mps. All wind data are based on rawin observations.

Chart XII. 700-mb. Surface, 1200 GMT, January 1967. Average Height and Temperature, and Resultant Winds.

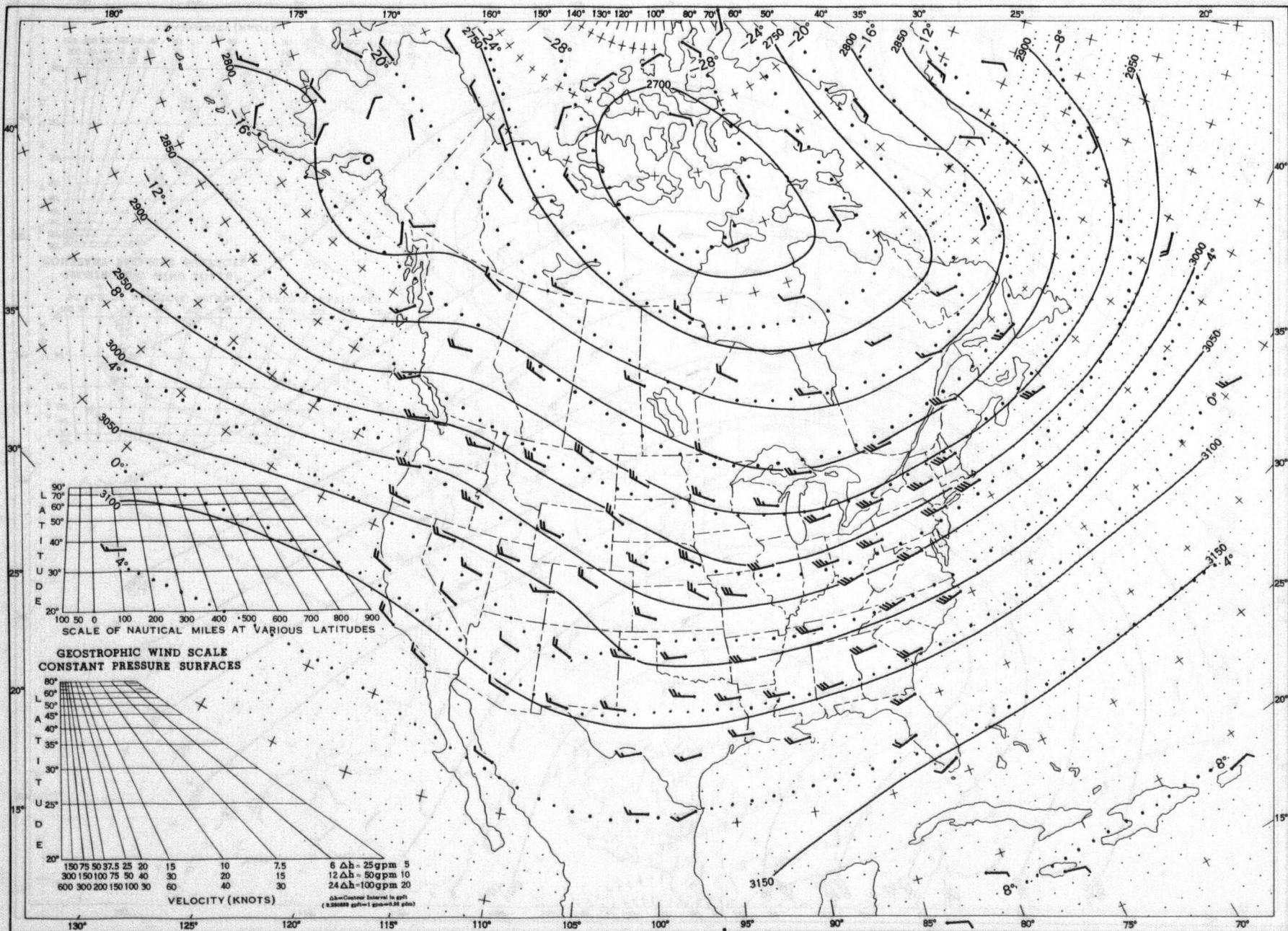


Chart XIII. 500-mb. Surface, 1200 GMT, January 1967. Average Height and Temperature, and Resultant Winds.

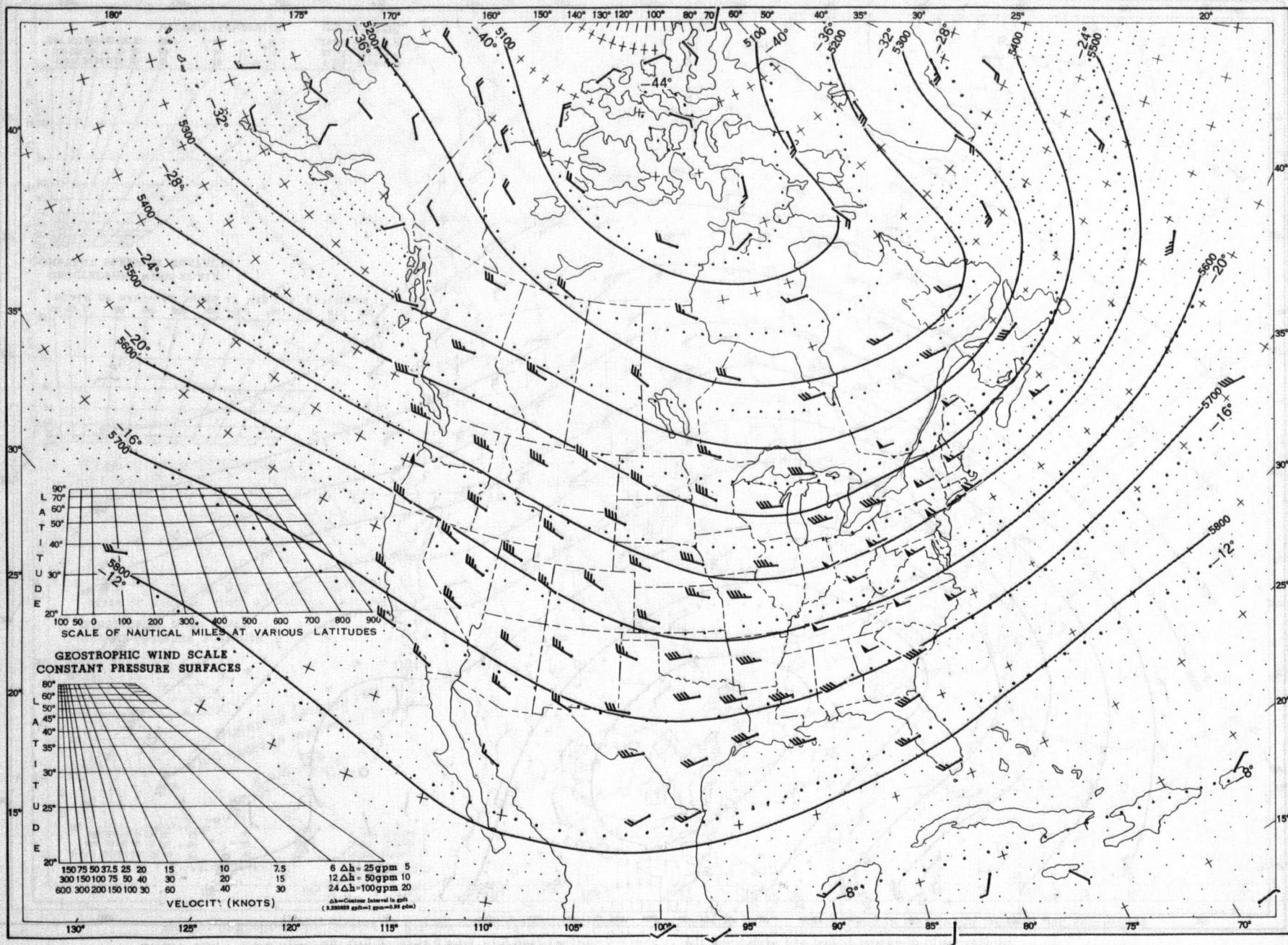


Chart XIV. 300-mb. Surface, 1200 GMT, January 1967. Average Height and Temperature, and Resultant Winds.

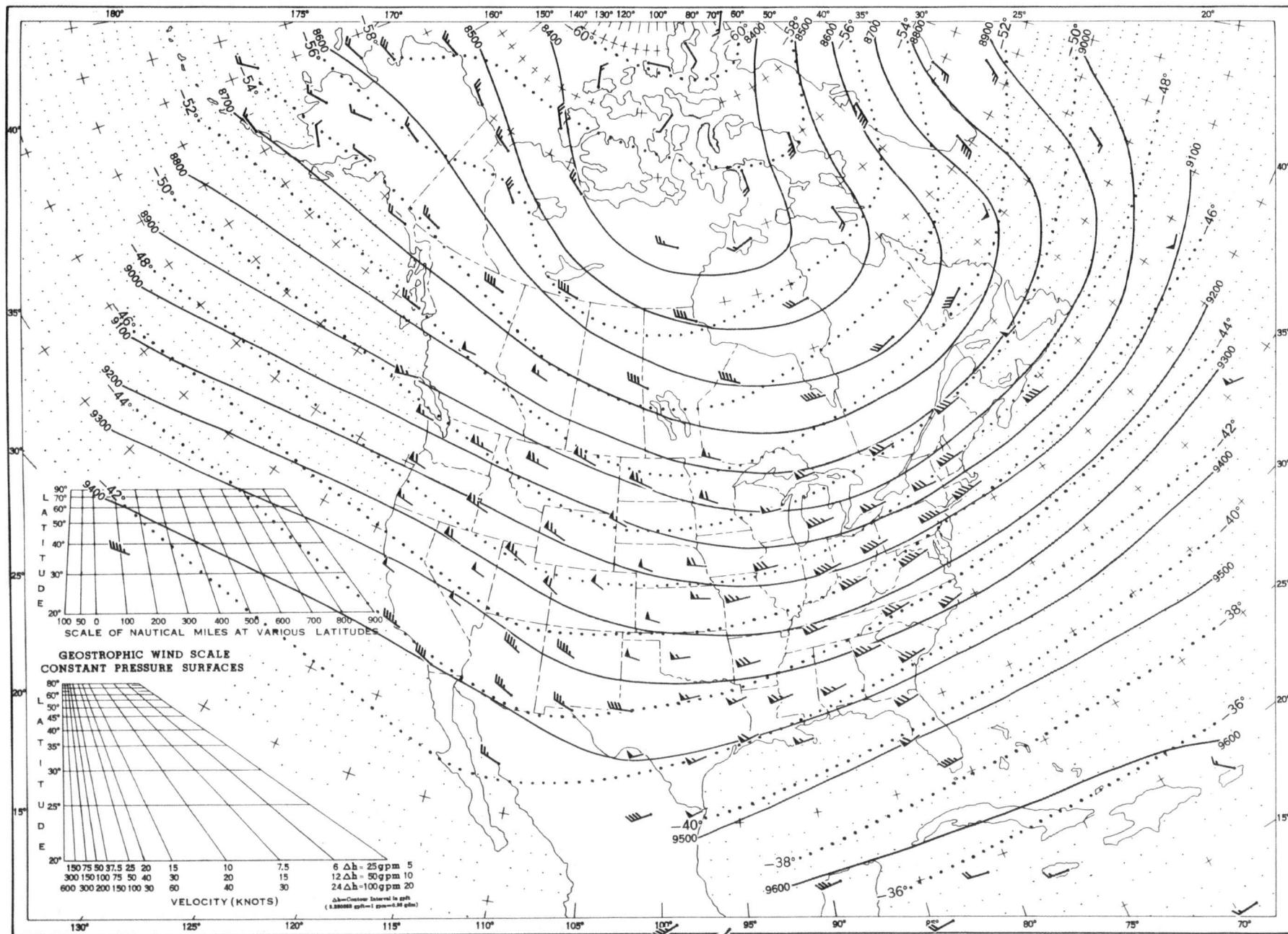
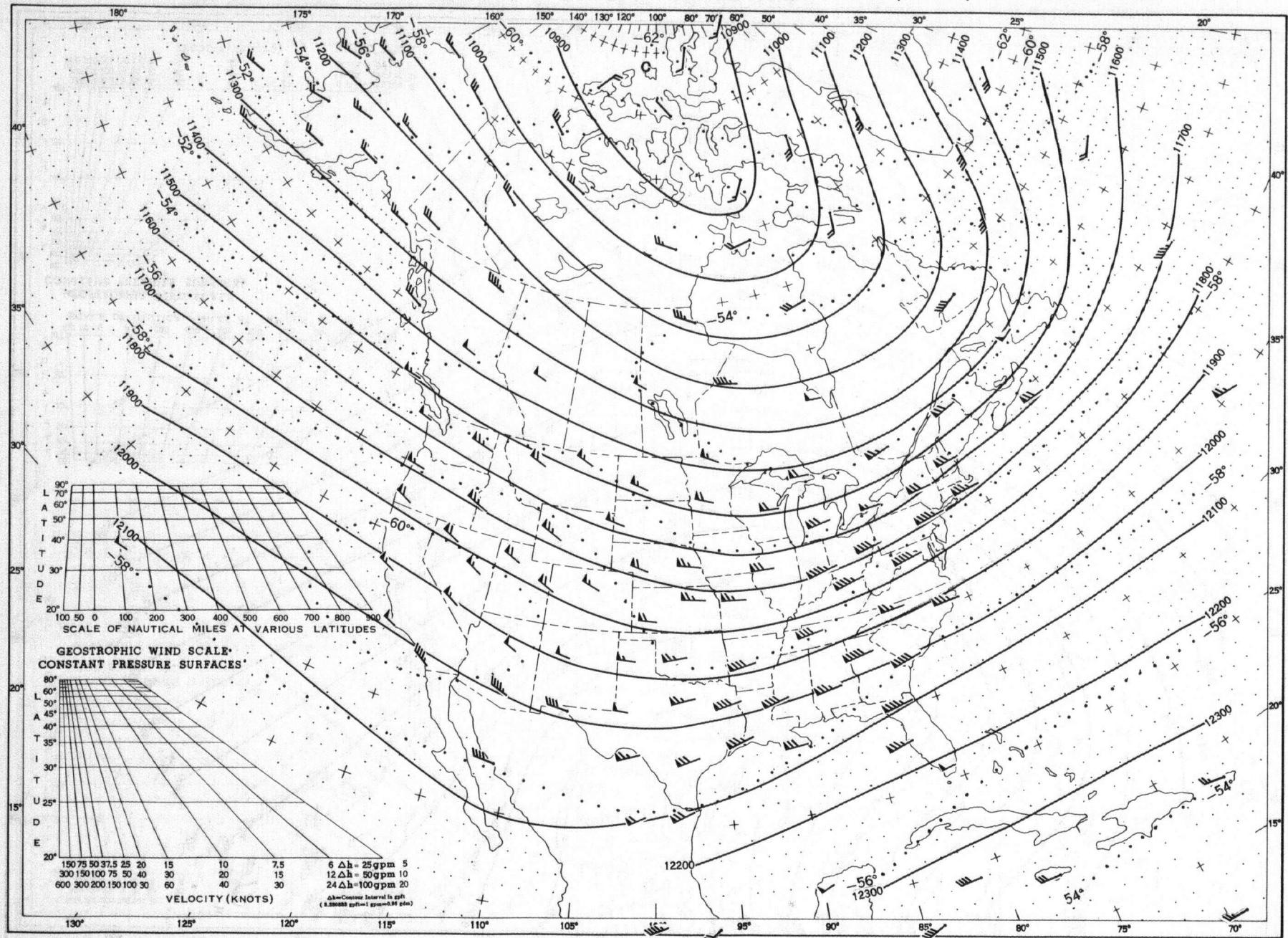


Chart XV. 200-mb. Surface, 1200 GMT, January 1967. Average Height and Temperature, and Resultant Winds.



See Chart XI for explanation of map.

Chart XVI. 100-mb. Surface, 1200 GMT, January 1967. Average Height and Temperature, and Resultant Winds.

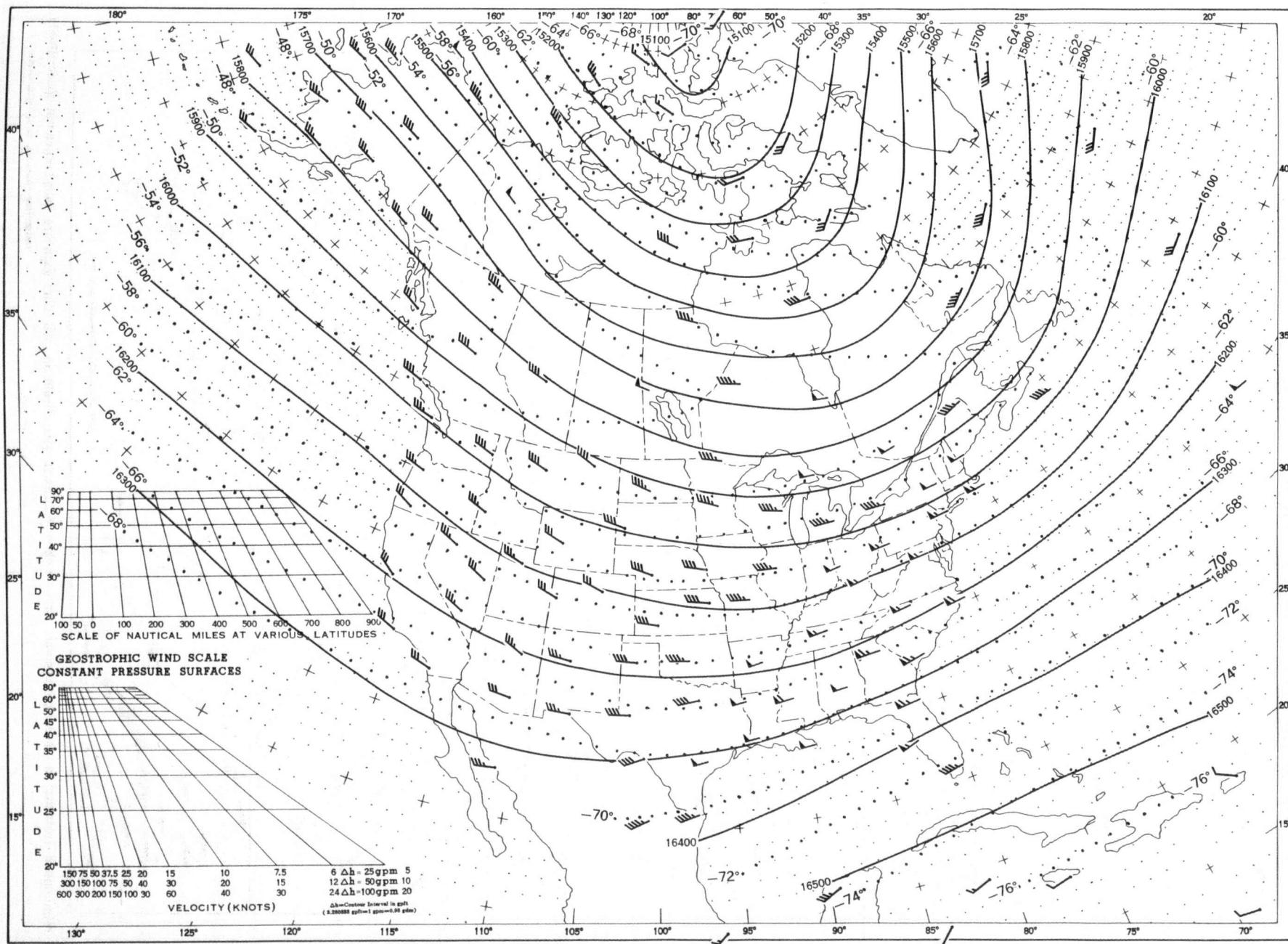
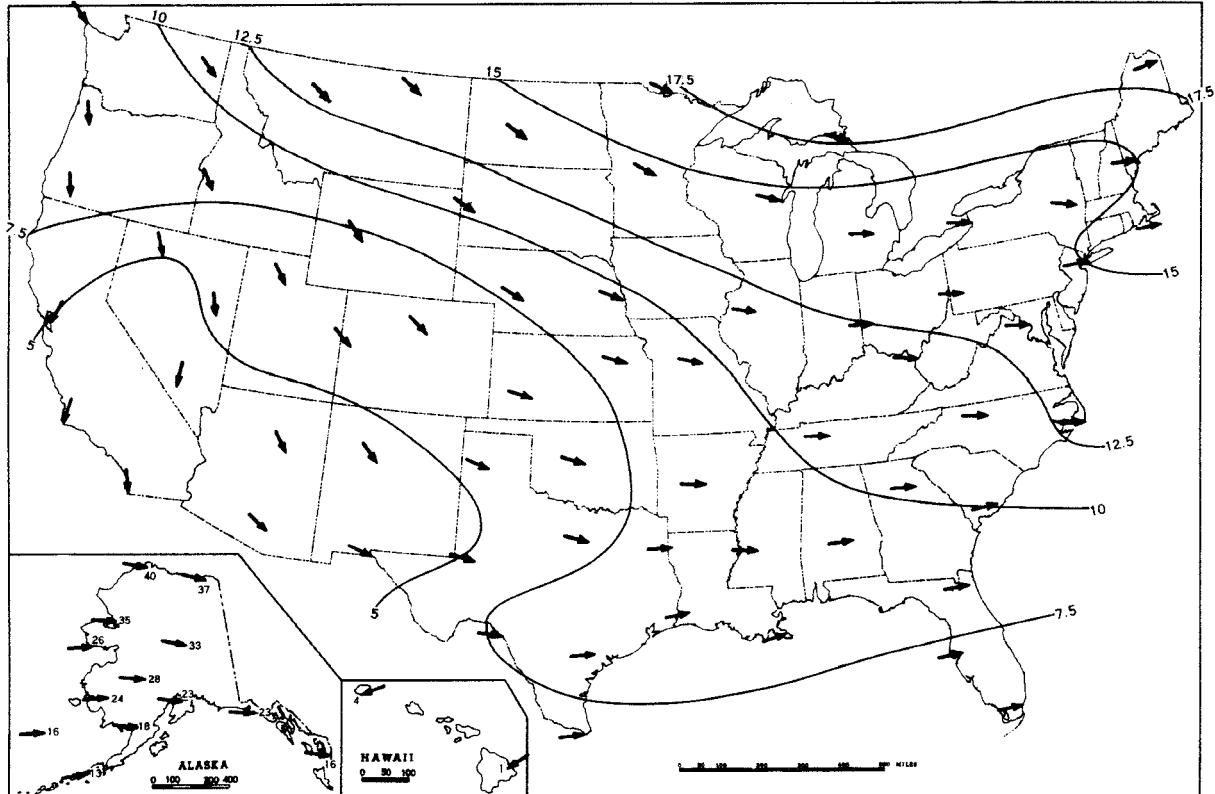
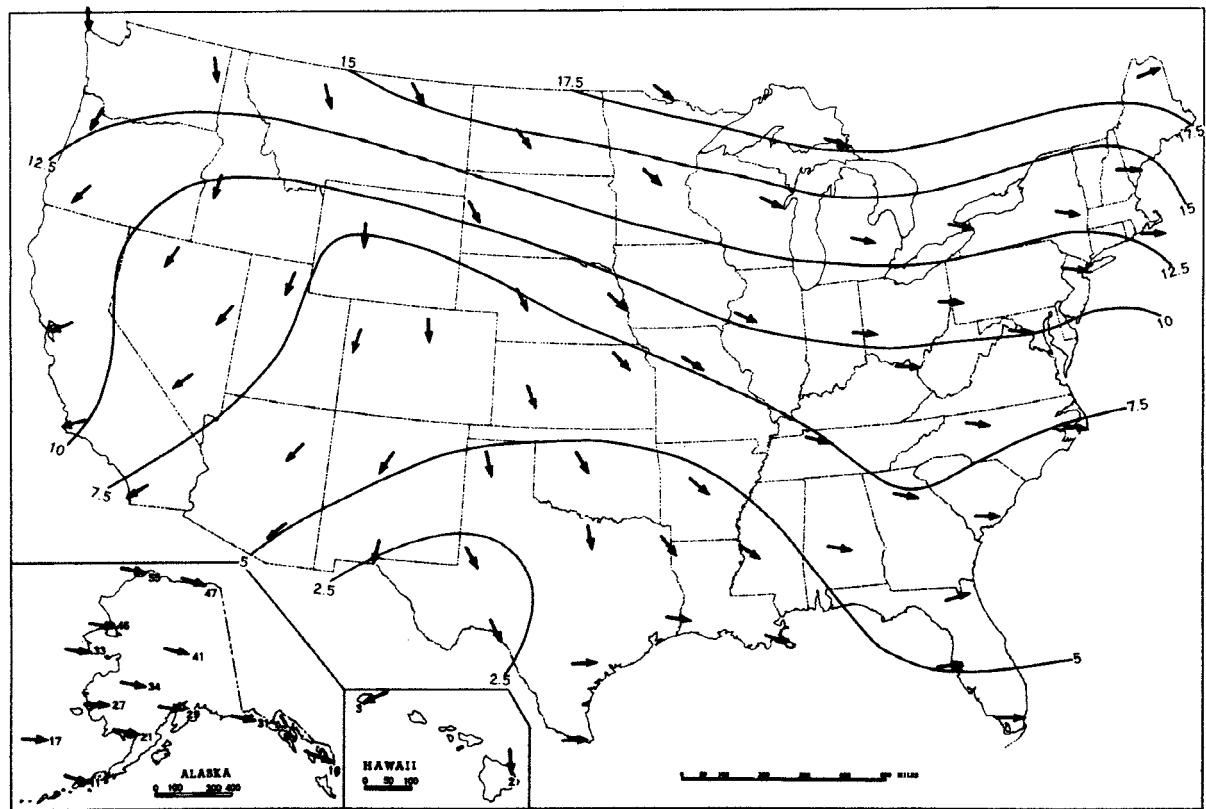


Chart XVII. A. 50-mb. Surface, 1200 GMT, January 1967. Resultant Winds.



B. 30-mb. Surface, 1200 GMT, January 1967. Resultant Winds.



Wind speed (isotachs) in meters per second. Arrows show resultant wind direction. All wind data are based on rawin observations.